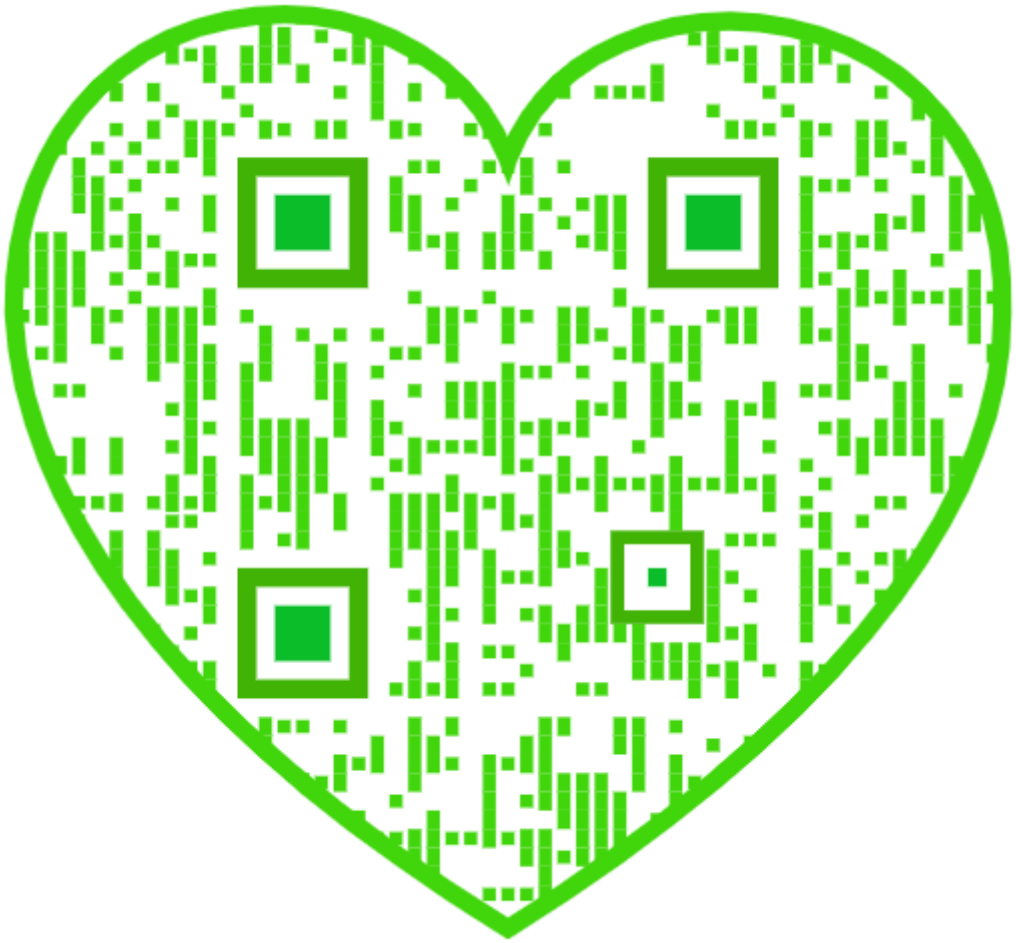

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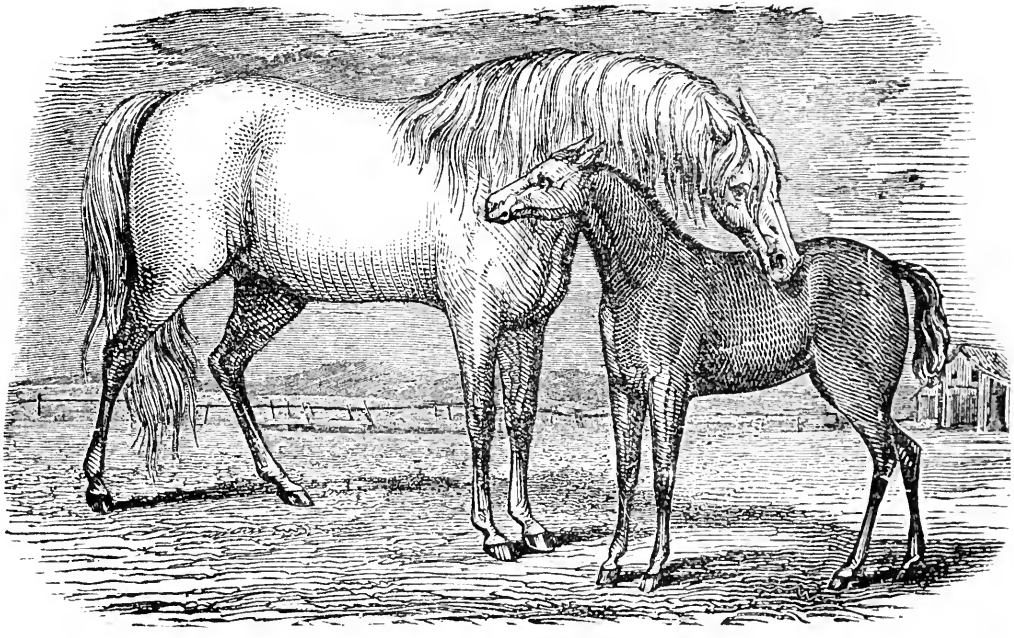

A BOOK FOR EVERY FARMER.

THE

AMERICAN VETERINARIAN;

OR

DISEASES OF DOMESTIC ANIMALS.

SHOWING THE

CAUSES, SYMPTOMS AND REMEDIES,

AND

RULES FOR RESTORING AND PRESERVING HEALTH BY GOOD MANAGEMENT.

WITH

DIRECTIONS FOR TRAINING AND BREEDING.

BY S. W. COLE,

EDITOR AGRICULTURAL DEPARTMENT BOSTON CULTIVATOR, FORMERLY EDITOR YANKEE FARMER AND FARMER'S JOURNAL.

NEW YORK:

ORANGE JUDD & COMPANY,

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The animals in our Frontispiece, "Lady Messenger," and her colt, "Morgan Messenger," are descendants of the famous Morgan and Messenger horses. They were formerly owned, and the colt was raised, by S. W. Jewett, Esq., Weybridge, Vermont; but are now the property of General S. W. Burroughs, Medina, Orleans county, New York.

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PREFACE.

In the whole routine of husbandry, there is not a subject on which there is so great a want of information as in treating sick animals, and preventing diseases; and in no case do so serious and frequent losses occur, for want of knowledge. These losses, in this country, amount to a vast sum annually, not less than some millions of dollars; the greater part of which might be saved by good management and proper treatment.

More than twenty years ago, we commenced collecting valuable rules and prescriptions, for managing animals and curing diseases, for our own private use in pursuing the business of farming; and in a number of instances, neighbors consulted these authorities, and by aid of a simple recipe, saved the lives of valuable animals. A mere item of a few lines, that costs less than one mill, may enable the farmer to save the life of an animal. By the help of a single prescription, whole herds and flocks have been saved from the "*pestilence* that walketh in darkness, and the *destruction* that wasteth at noonday."

We have continued our collection of valuable matter, consulting the best American and European authorities on the veterinary art, and many skilful practitioners, from whom we have obtained new and valuable prescriptions; and in conducting agricultural journals for more than twelve years, we have carefully examined all the works of this character, in this country, and some of the principal English periodicals, through which numerous intelligent farmers have communicated their experience in managing stock and treating diseased animals.

Availing ourselves of our own experience and observation as a practical farmer, and conductor of papers devoted to the farming interest, and of our numerous sources, we have collected a vast heap of valuable materials on the subject of this work. This we have examined, sifted, arranged, digested, and reduced, by excluding words and retaining ideas, facts, and opinions, so as to present the *cream* and substance of the whole, in one neat, cheap volume, within the means of every one, and in a clear, simple style, within the comprehension of every one of common capacity.

This work is not only adapted to the wants of the farmer, but it should be in the hands of every mechanic, and persons

of every profession, who keep only a single horse, cow, sheep, pig, dog, or a few fowls. For every one who keeps animals should not only learn to keep them in good health for pecuniary gain, but as a matter of humanity and benevolence, in relieving distress and adding to the comfort of those animals which a kind Providence has placed under his care and control, for his own special good.

On some nice and difficult subjects, as to the peculiar properties and effects of certain medicines, and some points in the pathology of diseases, involved in the sciences of anatomy and physiology, we have had the assistance of the most skilful and experienced. We are more especially indebted to Dr. Holmes, the worthy Editor of the "Maine Farmer," for freely offering any aid, and giving valuable information, from his own experience and observation, on some of the the most difficult cases that occur in the veterinary art; and to Sanford Howard, Esq., one of the able Editors of the "Albany Cultivator," who is excellent authority in breeding and managing stock, for assistance on abstruse points and questionable subjects.

It has been our object to give several remedies, especially for the most common and destructive diseases; as, in case a medicine does not succeed in due time, it affords an opportunity to try another; and many simple remedies are brought forward which the farmer has in his own house, or on his own premises, while he does not have convenient access to the apothecary's shop; and these simple means are often as efficacious as a compound collected from the *four quarters* of the world, and *New Holland* besides.

Among the simple and valuable medicines which the farmer generally has at hand, are common salt, saltpetre, lime wood ashes, soot, lard, eggs, oil, mustard, molasses, honey, sugar, charcoal, ginger, tobacco, pepper, cayenne, bran, gruel, spirits of turpentine, coffee, camphor, sulphur, vinegar, tar rosin, chalk, and many other articles. And numerous herbs, barks, roots and plants, afford valuable decoctions, infusions, digestions and fomentations, that are among the most sovereign remedies for beast or man.

We would invite intelligent men, who carefully investigate the subjects in this work, to give us their candid opinions on any part that claims particular attention, in the way of comment. Such notice will be gratefully received.

March, 1847. S. W. COLE.

FOURTEENTH EDITION, OR THIRTIETH THOUSAND.
Revised and Improved by the Author.
New England Farmer Office, Quincy Hall, Boston, 1850.
S. W. C

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DISEASES

OF

DOMESTIC ANIMALS.

Domestic Animals lessen the solitude and retirement of the country. They please us with their gambols when young, and by their actions in maturer life. They furnish the means of improving the soil, and perpetuating its fertility; and we are gratified with our sovereignty over them.

The Horse greatly adds to our pleasure and our profit by his labor in the field and on the road, and his fleetness in carrying us from place to place. He aids in keeping up a communication with distant sections of the country, and serves as a necessary part of the cement of civilized society. He administers to our health, as well as to our pleasure and general welfare. He often evinces great sagacity, and a strong attachment for his master.

Neat Cattle contribute largely to the blessings and comforts of life. The strength and patience of the ox in the plough and team, have greatly contributed to the wealth and happiness of the husbandman, in every age of the world. The cow has strong demands upon our gratitude. Her milk furnishes subsistence to a great part of mankind; and its products in cream, butter, and cheese, form agreeable parts of the sustenance and luxuries of our table. A pustule upon her udder supplies a matter, which, when introduced into the human system, defends it from one of the most fatal and loathsome scourges that ever afflicted mankind. Their flesh affords an agreeable nutriment; their tallow serves as a substitute for the sun, and enables us to prosecute our business during a part of the long and dreary night. Their

hair affords a necessary ingredient in plaster; their skins protect our feet from injuries and the weather, and furnish covering for books, carriages, trunks, and form the best material for harnesses, saddles, bands, and many other valuable purposes. Their horns supply combs, and, with their bones, are used in a variety of ways.

Sheep are a pattern of innocence and a symbol of purity. In all nations, and in all ages of the world, their flesh has been admired as a delicious and wholesome food; and they annually yield their warm and liberal fleeces to defend us from rigorous cold, protect us from inclement weather, and contribute to comfort, elegance, and taste.

The Hog, while living, will make manure for the farmer, being one of the most useful of manufacturers for this purpose; and at his death, he furnishes his flesh for food, his bristles for brushes, and other important uses, his fat for medical and culinary purposes, and his oil for light.

The Dog is distinguished for his courage and fidelity in defending our persons and property; for his strong attachment for his master; and, in many cases, his sagacity in saving the life of his friends, commands our admiration, and commends him to our kindness and attention.

Poultry have strong claims upon our kindness and care. They adorn our yards and fruit-trees with their beautiful plumage and various lively actions. They inform us of the approach of day. They furnish quills for writing, and feathers for beds; and their eggs and flesh are a mild sustenance for the invalid, a delicious food for the hale, and a banquet to grace the board of hospitality and elegance.

Although different species of animals differ materially in some respects, yet they are nearly the same in others. In regard to good, wholesome food, pure water, fresh air, exercise, dieting, abstinence, protection from exposure, kind treatment, and general management, the same, or nearly the same rules and remarks apply to all; and some few diseases, their causes, the treatment and remedies are nearly the same in all.

Therefore, to save repetition, and compriss as much useful matter as possible in this compend, we have arranged, under the general head of "Domestic Animals," several articles that appertain to all, or to several kinds; and we have treated of those diseases and the management peculiar to each species, under their appropriate heads. Owing to this arrangement of the work, those who consult it, on the diseases of any species, should consider these general articles first.

TREATMENT OF SICK ANIMALS.

There are many erroneous notions prevalent in the community, in regard to the treatment of sick animals, and numerous unnatural and injurious practices prevail, in consequence of these notions. If animals could speak, they would tell sad tales of "wrongs and outrage."

No wonder that this course is pursued with animals, when we consider that many human beings frequently have their stomachs converted into apothecaries' shops, and after taking emetics and purges, emptying the stomach and washing it out, the patient, poor and debilitated by the severe operations and necessary starvation attendant upon them, is again built up, with all possible despatch, by roast beef, baked lamb, boiled pork, and a host of other substantial dishes, and numerous condiments to excite the appetite; when a little abstinence, allowing the over-tasked digestive organs a little rest, would have cured, without impairing the powers of the system.

We recommend to owners of animals to exercise *common sense*, act with moderation and discretion, and not take hasty and harsh measures, and kill an animal by rough treatment, and by numerous and powerful doses, when, perhaps, if he was left for nature to do her own work, first removing the cause of disease, he would recover without medical aid. Be cautious against *too much doctoring*. Remember the distich,

> "You say you doctored me when lately ill;
> To prove you didn't, I'm living still."

Remember, also, the remark of a celebrated physician of England, whom the faculty attempted to keep *down*, as he was not rising by rule, but who came *up* in *spite* of their influence, and when he had attained eminence, and become a celebrated lecturer, he often told his students, that when they had pursued a regular course of treatment with a patient, and noted the treatment and his condition from time to time, till he recovered, it was of the greatest importance to consider whether he got well by *virtue* of the medicine, or *in spite of it*. This remark shows profound wisdom, and a monument should be built to the memory of the man who made it; to him who *saves* life, by wise direction, rather than to him who, as a hero, *destroys* it.

Diseases, directly opposite in their nature, are often treated with the same medicine. A quack once said to his patient, who was taking his medicine without amendment, "My medicine is good for *all* diseases." "But," says the patient, "I want a powerful medicine applying directly to my *peculiar* disease, which is severe and obstinate." He dismissed his medical attendant, procured a simple medicine of a friend, good for that particular disease, and he immediately recovered. This shows the folly of giving medicines at random, or giving general medicines without regard to their quality or the nature of the disease. The disorder should be well known, and the medicine and treatment particularly adapted to it.

Most diseases in animals closely resemble those of the human family, and require similar treatment, though with some variation and peculiarities, but not those outrageous departures from common sense which are often witnessed.

A horse with pleurisy or inflammation of the lungs, or apoplexy, requires a very different treatment from one with colic or worms.

There is, everywhere, too great a propensity to resort at once to active treatment and powerful medicines, without proper regard to the *disease*, its *causes*, the *symptoms*, or the *remedy;* forgetting, or perhaps never having learned, that there is in nature a restorative power, under

favorable circumstances, and the grand object of all medicines, and all treatment, is to *assist nature*.

In the human family, great cures are performed by proper attention to food, abstinence, exercise, air, bathing, rest, and to the various habits of the patient. Some severe and obstinate diseases, that have refused to yield to the most powerful medicines, have been completely conquered by abstinence — even sometimes approaching to starvation.

Why should not some of these gentle means, or the last severe course, if necessary, be pursued with brute patients?

Keep animals constantly under favorable circumstances for health; and, in case of sickness, remove and withhold all causes of irritation and disease, and place the patient under the most favorable treatment for recovery. Keep the bowels open, the skin clean and well rubbed; give pure water, good food, suited to the condition, fresh air, yet protect from exposure; and but very little medicine will be necessary, excepting in sudden attacks with acute diseases.

Judicious management is the main thing, both in preserving and restoring health. We say of *good management* in regard to *animals*, as Demosthenes said of *pronunciation* in *oratory*, — it is the FIRST, the SECOND, and the *third* important requisite.

TO PROMOTE THE HEALTH OF STOCK.

Under various heads, in other parts of this work, we have given directions for the management of stock; we here give some general rules, with a few remarks on subjects not elsewhere considered.

Mix, occasionally, one part of salt with four, five, or six parts of wood ashes, and give the mixture to different kinds of stock, summer and winter. It promotes their appetite, and tends to keep them in a healthy condition. It is said to be good against bots in horses, murrain in cattle, and rot in sheep.

A correspondent of the "Southern Planter" says, that he put ashes into his hogpen, and sprinkled them with

salt, and his hogs ate greedily of the mixture. He gave it to his cattle, and they improved wonderfully. We have given it to cattle and sheep, apparently with good effect. They eat it freely. It neutralizes the acid in the stomach.

Horseradish root is valuable for cattle. It creates an appetite, and is good for various diseases. Some give it to any animal that is unwell. It is good for oxen troubled with the heat. If animals will not eat it voluntarily, cut it up fine and mix it with potatoes or meal.

A quart or two of new chamber lye, frequently given to each animal is a preventive of disease. A piece of rosin, the size of an egg, pounded fine and given to a horse once a month, in his provender, is excellent for keeping him in good health; it keeps the urinary passages open.

Feed all animals regularly. They not only look for their food at the usual time, but the stomach indicates the want at the stated period. Therefore feed, morning, noon and evening, as near the same time as possible.

Guard against the wide and injurious extremes of satiating with excess and starving with want. Food should be of a suitable quality, and proportioned to the growth and fattening of animals, to their production in young and milk, and to their labor or exercise. Animals that labor need far more food, and that which is more nutritious, than those that are idle.

Those with young should be well kept, as they have an extra draught upon their resources; but they should not have very rich food, as high condition, in such cases, is often attended with difficulty and danger.

Animals with young will do better by having moderate exercise, as it tends to insure health, strength, and perfection in their offspring. When giving milk they should have an abundance of rich food, but not such as will tend too much to flesh and fat, nor so much to milk as to make them poor.

Males used for propagating their species extensively, should be well kept at all seasons, and fed high at the time their services are most in demand; and, at other seasons, they should have a moderate share of exercise, to give them strength, symmetry and health.

Young animals, that are growing fast, are very hearty and need good keeping. Those that are fattening require rich food and a good supply. Yet there are seasons in which some animals are not growing, fattening, nor laboring, and there are no heavy draughts upon them; in such cases they should be fed only moderately, and with plain food, as that which is rich will tend to cloying and disease.

In grazing, animals are often injured and their health destroyed, by feeding on unwholesome plants in luxuriant, wet, marshy lands, and by the unwholesome exhalations and water of such regions. In such cases, give salt, ashes, a little salt-petre now and then, tar, and other condiments that are conducive to health; and keep animals from such lands at night, and supply with water from high lands, if possible.

Unwholesome food is often fed to animals in winter, such as bad grain, musty hay, and other fodder, and hay salted too highly, to save it when got in green. In such cases a peck of salt to a ton is too much, if it all be salted at this rate; for thirteen cows will eat about a ton of hay in a week; and we have observed that when cattle are at grass, at a season in which they eat more salt than in winter, thirteen grown animals will not, on an average, through the summer, eat four quarts of salt a week, given to them twice. This would indicate four quarts to a ton to be an abundance.

Musty hay is improved by cutting and moistening with water, adding occasionally a little salt to the water, if no salt was put on the hay.

Guard all descriptions of stock against cold and exposure, especially against cold storms of rain, sleet and damp snow, and against lying out on the cold ground, in cool nights, in the spring and fall.

In a dry time, see that animals have a good supply of pure water. When the fountains are low, they drink the drainings of fountains, streams, and passages of water, which are unwholesome.

If barns and stables are very tight and warm, ventilate in mild weather, even in winter.

In feeding animals on apples or roots, begin with a

small quantity and gradually increase it. It would be better to have all changes in food made gradually, when there is a material difference in the nature of the food; as from hay to grass, and the reverse; from much fodder to much grain, and the reverse.

COMFORT OF ANIMALS.

An animal may be well fed, and apparently well attended, and yet be uncomfortable, owing to an uneven floor to stand or rest on, a bad rack or manger, or some other inconvenience in the stable. There may be a want of exercise, or condiments, or change of food, pure air, currying, pure water, or something else necessary to comfort. He may breathe on his food, and render it offensive; something not very apparent may incom mode, vex, tease, or render the animal in some way uncomfortable. Of course, his digestion is impaired, his appetite declines, he will not grow or fatten, and is unfit for labor, and the female will not be in good condition for propagation, or yielding plentifully good, wholesome milk. Therefore, *make your* ANIMALS *comfortable.*

EXERCISE.

The health of man depends more on exercise in the open air than on any other one thing. A proper diet, bathing, protection from exposure, regular rest, regu larity in meals, suitable employment for the body and mind, freedom from trouble and vexation, and many other favorable circumstances, are all conducive to health, and some of them highly important, and to those who do not exercise, they are not only indispensable to health, but to life; for they cannot live without great attention to them.

But, as important as these are, let a man of common constitution be accustomed to a plenty of exercise in the open air, and he will often bid defiance to them all; and even contend strongly for many a long year against the gigantic monster intemperance. He will live on the fat of the land, or flourish on plain living or hard fare. He

will neglect bathing for a whole year, unless he is caught in a shower. He will bear the sun of a torrid summer, and face old Boreas in the sternest winter; he will take Jack Frost by the nose, and manage him to his advantage; will handle him in all shapes and conditions, and even pack him up, send him off, and sell him.

He will sleep ten hours a night, if necessary to kill time; or he will *sleep fast*, and occasionally get along comfortably with only a few hours' rest. He can eat four or five meals a day, when convenient, and at other times, he will flourish on two meals, and in cases of necessity he will endure labor on only one. He will attend to any employment, or, Yankee like, pursue every profession under the sun. And he will stem a torrent of vexation and trouble.

We have spoken of bipeds, as their habits and the influence of their habits are accurately known; for

"How can we reason but from what we know?"

Now, when we see that in man exercise is of more importance to health than anything else, and consider that animals in a state of nature take much exercise in procuring their sustenance, or as a matter of pleasure, and are consequently in good health, should they not have exercise in a domestic state, when, from high feeding and plethoric habits, they have far more need of it?

This subject has never received the attention its importance demands, and we fear that it never will; but we make these remarks, hoping that, in many cases, they will set the intelligent and discriminating to thinking, and lead to improvement. We pursue a course with animals which would kill ourselves, and when they are half dead from inaction and repletion, we kill and consume them, and thus live fast and short — wearing out our machine by too much speed, or we are suddenly thrown off the track and smashed — unless we save ourselves from these evils by an abundance of exercise.

But the wise man, in addition to this first thing for the preservation of health, will attend to all others also; for although of minor importance compared with exercise, yet they are of *great* moment. The subject of healthy

meats should receive particular attention in regard to exercise, this indispensable requisite to health — this emphatical *sine qua non*, (not without which.)

Let all animals have suitable exercise; it is alike conducive to their health, comfort and happiness; and it contributes largely to their utility for every purpose for which we keep them, whether for labor, propagation, for the production of milk, or for their flesh.

ABSTINENCE.

A great many diseases may be cured by abstinence, or by living a few days, or longer, if necessary, on light food. Many a person, by living on gruel, porridge, potatoes, turnips, fruits, and other light food, for a short time, has warded off threatened disease, or saved himself from active treatment under medicine that would have prostrated him, weakened the powers of digestion, and perhaps impaired the strength of the constitution.

Physicians generally, and the most skilful in particular, are too wise to take much medicine, however liberally they may deal it out to satisfy the expectations of their anxious patients, who depend mostly on them for recovery. Howard, Napoleon, and many other distinguished men, who had a great knowledge of the human system, seldom took medicine; but, on the approach of disease, they fasted, or lived abstemiously, and thus avoided sickness. We make these remarks with a view of urging the importance of abstinence, or light feeding, in treating animals that are suffering from inflammatory complaints, and various diseases brought on by too rich and too liberal feeding. Light food, such as bran mashes, roots in small quantities, coarse fodder, straw, &c, will fill the stomach, satisfy and make the animal comfortable, and prevent the danger that might arise from an empty stomach, in case of total abstinence, and yet afford but little nutriment to support inflammation, and feed a disease. In this way, many diseases may be prevented by timely consideration, and this course of treatment, while the animal is under disease, may cure, or serve as a valuable auxiliary in connection with the medicines

Those who consult this work will please bear this subject in mind, and regard its importance in those cases in which light food is recommended; for more can be done to keep an animal in health, or restore health when he is diseased, by good management, than by medicines.

Nature wisely provides that our appetites shall fail when we are sick and the system cannot dispose of food. We should improve upon this hint, and prevent sickness by moderation in all things. On this our health and life depend. And as health depends so much on temperance in eating and drinking, so, in case of illness, restoration to health depends greatly on abstinence, or light food. Few are aware of its importance; many who are essentially benefited by it, lose sight of the cause.

A man, who was sick from high living, consulted a physician, who put him on the most rigid, spare diet, as the only means of restoring health. He pursued it awhile; (suffering like the famous Sancho Panza, who saw the table groaning beneath rich viands which he dared not taste;) at length he resolved that his belly, which was his god, should be filled with something better than gruel and bran, and he nullified the physician's directions, and soon demolished a plate of mutton chops, and washed it down with brandy, and then said that these things cured him of such a disease; giving the physician no credit for curing him by starvation, allowing his system rest, and chance to regain its powers of digestion, so as to dispose of anything that was put into it.

Another case directly to the point: — A young man was ailing, and it was thought that he was going into a decline. He consulted several physicians, and tried their prescriptions, but in vain; and mesmerism was tried, with no better success. A friend proposed to undertake his cure, if he would follow his severe directions; to which he agreed. He was kept on gruel, and only a small allowance of that, as his case was an obstinate one. Under this regimen he recovered, and we saw him some months after, hale and robust, pursuing the sturdy labors of the farm.

The sick often injure themselves by feasting, being tempted by the excellent, rich dishes provided for them. The following is an illustration: An invalid had a favorite food prepared for his *weak* stomach; and when he had despatched the eleventh dumpling, and was about making an attack on the last, his little daughter exclaimed, "Oh! dad, give me dat!" when he replied, with a most lugubrious countenance, and in a melancholy tone, "Go away, child; poor dad is sick!"

We give these cases as illustrations, as they show the importance of abstinence, where we can and have judged of its effects. By reasoning, we can see its bearing on the health of domestic animals, and make the application; for, in this respect, all animals are much the same whether two-legged or four-legged.

UNHEALTHY MEAT.

Great labor injures meat. A fat ox was overworked, and then killed, and his flesh sent to market. Of twenty-four persons who ate of the meat, fourteen died, mostly with diseases of the stomach and bowels.

Driving animals rapidly in hot weather, so as to produce excessive fatigue and exhaustion, renders their meat unwholesome, as well as unsavory; hence the superiority of the meat of animals brought to market in steamboats and cars, or allowed to travel leisurely, feed by the roadside, and gain on the way, over that of animals driven rapidly, and far, in hot weather.

All very young meats are hard to digest, and of course unwholesome. A calf at three weeks old is harder to digest than an ox at ten. A young pig is more unwholesome than a piece of an old hog. A chicken one month old is more difficult of digestion than a hen of one year. Young animals, in this respect, are like fruits, that not only lack maturity, but are only partially grown. With this view of the subject, the authorities of Paris have ordained that no veal shall be offered for sale, unless the calf was six weeks old.

Putrid exhalations produce obstructions and ulcers in the livers of animals, which render them unfit for food:

hence the importance of pure air for healthy meat. Anything that tends to make animals unhealthy, tends also to render their flesh unwholesome.

Animals are always unwholesome in the season in which they propagate their species. Hence the wisdom of that church which substitutes fish for flesh during a part of the spring months.

Even the heat of summer, in middle climates, renders their flesh unwholesome. Hence the propriety of living mostly on vegetable food, with a small portion of salted meat, during the summer and early part of autumn.

Animals sometimes become so fat that they cannot see, and for weeks or months before their death, cannot get up without help. Such have the *fat disease*, that would soon destroy them; *but they are saved from waste by being killed and eaten.* Some animals are kept in filth and foul exhalations, and are fed on the most nasty and putrid vegetable and animal matter, taking no exercise, and are thus fatted without a breath of fresh air, or a mouthful of pure food. This course would soon terminate their existence, but the butcher's knife kindly saves them from a lingering death, and they are sold in the market, and eaten by the purchaser, who is unconscious that *death is in the pot.*

Some persons are so great epicures that they only wish to feast on those fat meats that the man of *common sense* would pronounce fit only to aid in the composition of soap. They seem to live merely for the sake of eating, but they defeat their own purpose, by living too highly, and feasting on meats so rich and unwholesome that their career is as short as it is inglorious.

In and about cities there is a vast amount of filth, fit only for manure, that is converted into food for man; and with so little change, that the meat produced from it engenders disease and death. To insure life and health, an animal, as well as man, should have pure air, pure food and exercise; and any deviation from these rules produces disease, and those who eat diseased matter, animal or vegetable, violate nature's laws, and must, sooner or later, pay the sad penalty annexed to the transgression; no matter whether they do it from

temerity or indiscretion, — she knows no exceptions. Her laws are inflexible, — as fixed as those of the Medes and Persians.

Again we say, keep your animals, for your own eating, on wholesome food, pure water, and in good air; allow them exercise, and place them under all those various circumstances that produce good health, and of course pure meat. And if you make meat to sell, love your neighbor as yourself, and

> "Be to others kind and true,
> As you 'd have others be to you."

Steal from a man's pocket, or rob him on the highway, — as criminal as it is, and as horrid and awful as may be the consideration of such crime, — rather than rob him of his *money*, his HEALTH, and his LIFE. Oh, that the "*auri sacra fames*," (cursed love of gold,) could find some less criminal mode of gratification, some other way of accomplishing its purpose, than that of tampering with the health and life of human beings!

ANIMALS DIFFER.

There is not only a great difference in the diseases peculiar to different species of animals, but the effects of medicines on them vary.

Knowledge of the diseases of animals in general cannot be inferred from a knowledge of one particular species; for in the diseases of different races, the causes vary, the peculiar nature of diseases is different, and there is also a great difference in the effects of medicine on different species. The anatomy and physiology of animals differ. The dog has no insensible perspiration. Hogs do not perspire over the whole system, like cattle and horses, but they have issues on the inside of their fore legs, which are an outlet for the superflous fluids of the body.

In the horse, the mouth conveys nothing to the lungs or from them. The passages to the lungs and to the stomach are distinct. The horse and deer, unlike other quadrupeds, have no gall bladder. Cattle have bots in

their skin, but not in the stomach, like the horse, unless from associating with that animal, and licking the nits from him.

Hove, or bloating, is peculiar to cattle and sheep, from their organization, in having four stomachs, and ruminating, or re-chewing their food. It is unusual in the horse

The effects of medicines on different species of animals vary as much as their structure and diseases. Salts, which are a valuable physic for cattle and sheep, operate on the horse as a diuretic; while aloes, which is the surest and best purgative for the horse, is very uncertain for cattle, and sometimes dangerous, from producing inflammation.

Calomel, rhubarb, and colocynth do not operate as purgatives on the horse; nor do any medicines operate on him as tartar emetic and ipecacuanha upon the human species. The horse can vomit only through the nose. Mercury will not salivate him, (but various plants will,) nor will sugar of lead poison him. But wheat, the natural food of man, is poisonous to the horse, when taken in very large quantities. Spirits of turpentine, which a child may handle without injury, operates as caustic when applied to the skin of the horse; yet it may be applied to sores without pain. It is also like fire, when applied to the skin of the dog. [For other differences, see Poisons.]

Notwithstanding these and other peculiar differences, animals in general are alike in many respects, both as to the causes and nature of diseases, and some remedies operate alike favorable on all. And as to treatment, in regard to wholesome food, pure water and air, exercise, protection from cold, wet, excessive heat, regularity of feeding, diet, keeping the bowels open, and the skin clean, &c. &c., nearly the same rules apply to all.

TRAINING AND BREAKING.

Animals should be *trained*, not *broken*. Train up an animal in the way he should go, and he will never need breaking. Some let their animals run wild, until three or four years old, and they become strong, wayward, and

ignorant; and then they undertake to break them, — and *breaking* it is, emphatically; for they often break their constitution, their courage, their spirit, and sometimes their bones; and occasionally the breakers themselves get their own bones broken in this hazardous business.

Besides these evils, there is great loss of time, and frequently a smash of carriages, a destruction of harnesses, and a large consumption of whips; and the animal, by this hard usage, — this *breaking* instead of *training*, — often contracts bad habits, from which he never can be broken; and frequent fright, and sometimes serious injury, or loss of life, is the consequence.

The most valuable animals for service, — the kindest, the safest, the most pleasant, and the most tractable, — are those that are trained in the way they should go, and well educated in their duties from their youth, or infancy, up to mature years. In all this training there should be great kindness; the most gentle means should be used, and the young animal should be taught, with patience and perseverance, what he should perform; not driven to do what he does not know, what he cannot understand, while threatened, frightened, and excited under the exercise of arbitrary authority and dictation; and sometimes smarting under the lash, or groaning under the unmerciful blows of the cudgel, until enraged and infuriated to desperation.

If managed with intelligence and discretion, with due regard to their tenderness and liability to injuries from bad treatment, no matter how early the training commences, — even when the animal is a few weeks old; he will soon become familiar, docile and tractable.

While the animal is young, and unaccustomed to control, and strongly inclined to follow his dam, or his fellows, great caution and kindness should be used in urging him in a way contrary to his habits and affections, while these form a ruling passion, and he has but little intelligence or knowledge; as fright and sad distress would be the consequence of crossing them. Under such circumstances, a young animal may be shut up or tied, and thus tamed and controlled, but he should not be driven by brute force, against his will.

You may confine a young animal to a spot against his

will, or carry him in your arms, by your superior force, without injury; but if you attempt to compel him to stay on that spot, or go the way you would have him, by the use of the lash or cudgel, you might kill him, but you could not overcome his inclination while it is stronger than the love of life, or he knows not the cause of the punishment so liberally and unmercifully inflicted.

GESTATION.

The experiment made by order of Earl Spencer on cows, has been reported in the Journals of the Royal Agricultural Society, and is very full and satisfactory. The number of cows noted was 764. The shortest period in which a live calf was produced was 220 days, or not much over seven months; but no calf, produced in less than 242 days, or about eight months, could be raised. The longest period of gestation was 313 days, or ten months and nine days. Of the 764 cows, 314 calved before the 284 days, and 310 calved after the 285th day. From this it would appear that the probable gestation in the cow may be fixed at 285 days, or nine months and twelve days.

The report of M. Teissier of Paris, of his experiment, made on the experimental farm established by the French government, both on cows and mares, shows the following results: — Of 582 mares which received the male but once, the shortest period of gestation was 287 days, or little less than nine months and a half — and the longest 419 days, or about thirteen months and a half; making a difference of 132 days, or over four months. Of 575 cows, 21 calved between the 240th and 270th day; 544 calved between the 270th and the 299th day — mean 282 days; and 10 calved between the 299th and 321st day — mean 313 days.

A German publication gives the following table: —

Animal.	Shortest period.	Longest period.	Mean period
Mare	322 days.	419 days.	347 days.
Cow	240 do.	321 do.	283 do.
Ewe	146 do.	161 do.	154 do.
Sow	109 do.	143 do.	115 do.

Professor Johnson observes, "That any calf, produced at an earlier period than 260 days, must be considered decidedly premature; and any period of gestation exceeding 300 days must also be considered irregular; but in the latter case the health of the produce is not affected."

Youatt says the usual time of gestation with cows is 270 days; but Bement, of Albany, who has made many observations on this subject, finds a different result. He sets it down at 283 or 288 days. Mr. Parolett, an English farmer, found, from his experiments, that sheep went with young from 144 to 158 days. Those that came earliest were ewes, and those that came latest were rams, proving that animals go longer with males.

WATER AND WATERING PLACES.

Every farmer should have a good watering place connected with his barn-yard, if possible, and it can generally be done at a small expense. It is not only a great advantage to stock, but it makes a great saving of manure.

When animals have water in or near the barn-yard, they will drink as they need it, and keep in better condition. When the water is far off, they often go without, even when they suffer for want of it. The distance, and often deep snows, and a cold blast, prevent their quenching their thirst at all times, as they would if water was at hand; and when very thirsty they drink to excess, and thus injure themselves.

In many cases, cattle, after going a distance for water, meet with troubles. The supply may be insufficient, or the water may be covered with drifting snows, or the ice may have accumulated so that the water is reached with great difficulty. Strong animals molest the weak ones on the way, or exhibit their domineering spirit by driving them from the water, or preventing their approaching it.

These evils can only be properly remedied by having a good supply of water in the barn-yard, or very near it; but if this cannot be done, provide, in a trough, or by other means, a good supply of pure water, of convenient access: keep it well cleared of snow and ice, and see that

the weaker animals are protected from the encroachments of the strong and tyrannical; if it be exposed to the north, put up a high board fence, or other protection, on that side, near the water.

In summer, stock should not be doomed to get an insufficient quantity of water from a mud-hole, as is often the case, when the fountain is small; but a good trough, or other vessel should be provided as a reservoir, that will hold enough for the whole stock, and these should be often cleaned out, that the water may be pure.

We made the following arrangement where the supply was small, and one or two animals would drink nearly all the water in the spring or fountain, and *roil* the rest. A duct was laid some feet, to give the water a little elevation. This was covered with earth, and the spring was also covered over. From the duct the water was conducted into a large trough, and then it ran into a half hogshead tub. In this way, a good supply of pure water was provided for the whole stock, when they all came to slake their thirst. These vessels were often emptied, and washed out clean.

Some farmers have provided a good supply of water in their barn-yards, at a cost of fifty or one hundred dollars, and would not now be deprived of it for the interest of five hundred dollars. It is less labor to pump water for stock at the yard, than to go some distance, and keep it clear of snow and ice, and see that the weaker animals can drink; besides the great saving of manure.

Cold, hard well-water, is very injurious to animals that are heated. It should stand awhile before using. Hard water, of a suitable temperature, is not injurious to animals that are accustomed to it. Sometimes a change from soft to hard water has an unfavorable effect for a few weeks.

COOKING FOOD FOR HORSES AND CATTLE

If grain be ground, it is more easily digested for this operation, and there is not so much need of cooking it. Green food, such as roots, grass, green corn fodder, and

other herbage, is easily digested; but in steaming dry hard fodder, it is softened, and affords more nutriment In this way, straw was substituted for hay, where considerable grain or meal was used, in an experiment made in England, on ninety head of cattle and horses, in which a saving of sixty-seven pounds was made. The cost of cooking was only five pounds.

In some cases it has been found profitable to cook potatoes and other roots, for horses and cattle, and there is no doubt that meal of any kind is greatly improved by cooking, but whether this improvement is sufficient to pay the expense and trouble, is another question. Mix up bran with a small quantity of water, and it appears much like sand, add more water, and it seems thin and light, but put it over the fire, and boil it a short time, and the whole mass becomes thick, and evidently greatly improved.

As to the economy of cooking food for cattle and horses, much depends on circumstances, such as the price of food and fuel, and the value of labor. Some thing depends, likewise, on the convenience for cooking. Some can cook food with half the labor and fuel that others can, owing to improved apparatus for the purpose.

Horses, cattle and sheep, are accustomed to the use of coarse food, and their powers of digestion are great; therefore there is not so much need of cooking food for them as for hogs, which thrive far better on cooked food.

SYMPTOMS OF DISEASES.

The following is from the American Agriculturist:— A full and frequent pulse, loss of appetite, dejected head, and a languid or watery eye, with a disposition to lie down in a dark or shady place, are certain marks, in all brute animals, of one of the most frequent diseases with which they are affected—that is, the fever. The watery eye, an inability to bark, or barking with a sterterous hoarseness, indicate the approach of madness in the dog. The elevation of the hair on the back of a cat, and its not falling upon its feet when thrown from a moderate

height, are the premonitory signs of that disease which has long proved fatal to that species of animal both in Europe and America. The tail of a horse losing its regularity of motion from side to side, indicates that he is indisposed, and the part in which the disease is seated is pointed out by one of his ears inclining backwards to the side affected. The seat of disease in the abdomen, where the signs are concealed, may be known by pressing the hand upon his whole belly. When the diseased part is pressed, he will manifest marks of pain.

PHYSIC.

There are few medicines so much abused as purgatives. They are often given without any reason, frequently in powerful, and injurious, and sometimes in fatal doses. Many animals, particularly horses, are destroyed by excessive doses of physic. Yet purgatives judiciously administered, are highly useful.

In inflammatory complaints, by rapid evacuations from the bowels, they expel the chyle, and cut off temporarily the supply of nutriment, and they promote the secretions on the inner coat of the intestines, drawing from the fluids of the body, and reducing the circulation; and thus they relieve an affected organ, or abate a general inflammation.

Physic removes from the stomach and bowels causes of irritation, and gives rest to the digestive organs which have been over-tasked, and relieves the stomach which has been overloaded.

By the moderate use of physic, together with proper attention to diet and general treatment, many diseases may be cured, which are now generally treated with bleeding and other harsh modes.

In chronic and slow diseases, it is best to prepare the animal for one, two, or three days, if convenient, by giving mashes, as this will loosen the bowels, and not only require a less dose of physic, but it will be more effectual in its operation.

But the most important consideration is, that the bowels being open, he purgatives can freely operate without

any obstruction, and obviate the danger that attends giving physic when the bowels are constipated, which is like the working of cider in a cask that is bunged, and sometimes produces severe and fatal cases of colic.

But if the disease be acute, and of so great severity that it will not admit of delay to prepare for physic, then a clyster should be given to aid the operation of physic, and if the bowels are constipated and apparently dormant, give some stimulant with the purgative, as ginger; and give an exciting injection to evacuate the bowels, and make way for the physic, and to rouse to healthy action the sluggish intestines.

In cases of very obstinate constipation of the bowels, ten or fifteen grains of the farina of the Croton nut, freshly prepared, may be added to the dose of physic, for horses or cattle. This is very powerful. [See under each species, the kinds of physic adapted to each, and the quantity for a dose.]

DIURETICS.

Diuretics cause a copious flow of urine, reducing the circulation, tending to abate fevers and inflammatory complaints. Several diseases are mitigated by the use of diuretics, and they may be used in some cases instead of bleeding, which it is desirable to avoid, as it is a harsh course of treatment.

In swollen legs, cracks, or dropsical affections, and in grease in horses and foul foot in cattle, or any unnatural enlargements by fluids, diuretics are given to great advantage. They are good to alternate with other medicines, in the treatment of mange, and other cutaneous diseases.

But in all accumulations connected with debility, they may do harm. We may remove swellings and extravasations to-day, and they may return to-morrow. In such cases, we must strengthen the system by tonics, proper feeding, and mild exercise; and aid the local debility by hand rubbing and bandages.

There must be caution in the use of diuretics, for as they produce a powerful effect on the kidneys, by

increased secretions in these organs, there is danger of injury and debility from over-action. [See Diseases of the Urinary Organs in Horses.]

Diuretics are used more in the treatment of horses, than in cattle practice. The following are diuretics: — rosin, turpentine, juniper, gin, saltpetre, honey, potash, digitalis, squills, tobacco, and cream of tartar. Many kinds of food have a diuretic effect, such as apples, pumpkins, roots generally, green corn-stalks, and most kinds of green herbage, at first. [For the principal diuretics in use, and the dose, see this subject under Horses and Cattle. For sheep, use the same as for cattle, only one eighth part as much for a dose.]

The following is good, as a general diuretic drink: — Powdered saltpetre, two drachms; powdered rosin, half ounce; ginger, two drachms; mix well together in a little molasses, and give in warm gruel.

SETON OR ROWEL.

A seton is a piece of leather, cord, coarse tape, braided horse-hair, or tow, passed, by means of a large needle, through the base of an ulcer or abscess, such as ulcerated poll evil, fistula, &c., to drain off the acrid and irritant humors; or they are inserted between the skin and muscular, or other parts beneath, in a sound part, to create an artificial issue, and make a general improvement in the whole system, or relieve a neighboring affection.

Setons are inserted in the breast of horses, and in the dewlap of cattle, in case of general inflammation, which is abated by a discharge of matter. They are also good in case of inward strains, and for swellings that cannot be dissolved. When the blood is in a bad state, a seton will draw off the foul humors, and thus improve the condition of the blood.

In cases of local complaints, this general issue will draw superfluous humors from all parts of the body, and discharge them, and thus relieve the complaint. When the local affection is very severe, and will not yield to other treatment, a seton may be inserted near it, sa

a hand's breadth below it, which will excite a new and artificial inflammation in the vicinity of the old one, and thus reduce its intensity, giving a new direction to the blood and humors, and concentrate a part of the nervous power on a new point.

A seton should be tolerably thick, and from eight to twelve inches long, and before inserting it, dip it into spirits of turpentine, or other exciting matter. In cattle, insert the needle in the upper part of the brisket or dewlap, and in the horse, in the breast, and bring it out four inches or more below the place of insertion. Fasten the seton by tying a large knot in each end.

Matter will begin to run the second day; and after that, draw the seton up and down two or three times a day, to irritate the parts and increase the discharge. When, for inflammatory diseases, or other complaints, you would produce a more copious discharge, rub the seton with blistering ointment. This will stimulate the parts to action, and hasten suppuration.

Clater says that the root of the common dock is a speedy and powerful seton for cattle, and the root of the black hellebore is still more powerful. The American hellebore, (*Veratrum viride,*) often called *Indian poke*, or *poke root*, strongly resembles the white hellebore (*Veratum album*) of Europe. Whether it is like the black hellebore here recommended, we cannot say. The American hellebore, or *poke root*, which grows in swamps, is very different from *poke weed*, (*Phytolacca decandra,*) generally called *garget*, also *cocum* and *jalap*, which grows on dry land, the root of which is much used in New England, in the dewlap of cattle, instead of a seton. [See Garget, under the general head "Cattle."]

When there is a considerable discharge of matter wash the place once a day in warm soap suds, and continue this after the seton is removed, while the sore is healing.

BLEEDING.

Bleeding is practised as a very speedy relief in some disorders. It reduces at once the circulation in the system, and diminishes nervous power. It is considered useful in the following cases:

1. In all kinds of inflammatory complaints, whether general or local.
2. In violent colds, catarrh, and influenza.
3. When inflammation is apprehended from bruises, internal or external strains, wounds or injuries of any kind.
4. When, from the exhibition of humors, as in cutaneous eruptions, sores, swelling of the glands, &c., the blood appears to be in a vitiated condition.
5. In cases of yellows in horses, and jaundice in cattle, attended with fever and constipation of the bowels.

Bleeding does not remove the cause of disease, but it gives temporary relief, and sometimes saves from a sudden and fatal termination, affording time and opportunity to remove the cause, and administer restorative medicines. We will suppose that there is a violent affection of the brain, by the determination of blood to that organ, that would prove fatal before medicines could operate, or a restorative course could be pursued. By bleeding, the circulation could be reduced immediately and relief afforded, and then by physic, diuretics, light food and other favorable treatment, the animal might be restored to health.

In acute inflammation, it is not only necessary to bleed copiously, but it should be done speedily, and the blood should run largely, as more effect is produced on the disease by one quart taken quickly, in a full stream, than by double that quantity allowed to dribble down slowly; as a powerful effect is produced on the disease, before the organs can accommodate themselves to the loss.

The quantity of blood taken must depend on various circumstances, such as the nature of the disease, size and condition of the animal, &c. &c. In very sudden and violent cases, it is recommended to bleed freely, even till

the animal falters, and the force of the circulation is sensibly reduced. In other cases, it is better to bleed moderately, or only slightly.

This remedy should be used with sound judgment, and with great caution; for, though it sometimes arrests a disease at once, at other times it may take away what little remaining strength the animal has.

Always catch the blood in a vessel, that the quantity may be determined. Give warm water after bleeding, and light food for several days, or longer; if the animal be in a weak condition, and keep him dry and warm.

We are aware that many, of very respectable authority, are opposed to bleeding in almost all cases, whether in the biped or quadruped race; and we must say that we regret to find that in works that are generally regarded as the best extant, bleeding is recommended for almost every disease that poor animals are liable to. Verily, it seems that the writers on the veterinary art are a blood thirsty set. One, who is regarded as high authority, in treating of twenty-nine different diseases incident to one species of animals, recommends bleeding in *twenty-three* cases; directing to bleed the poor creatures to the amount of six, eight, or ten quarts, or until they faint and fall, and, in some cases, *repeat* the operation.

The English term, cow-leech, is very appropriately applied to a cow-doctor, as they draw blood so profusely They are leeches in very deed. The English veterinarian surgeons bleed for most disorders.

Although bleeding to so great an extent as recommended by foreign authorities, and as practised by some in this country, who follow in their track, is, by no means, to be recommended, yet there are two reasons why bleeding may be more necessary in animals than in the human subject.

1. The animal is often very severely attacked before it is known that he is diseased, and some very powerful remedy is necessary, and that which will produce a very sudden effect; on the contrary, the human patient can give notice of disease at its first approach, when it is more easily subdued.

2. Sweating is a powerful remedy in some diseases

and in numerous cases an excellent substitute for bleeding, as it subtracts very largely from the blood, reducing temporarily the circulation, producing debility, and purifying the blood; this may be practised conveniently in the human subject, but in animals it is very difficult.

In this work, we have preferred other remedies to that of bleeding, so far as others seemed efficacious, as shown by practice; but as all works on the diseases of animals have run so much on bleeding, and as this has been the practice to a great extent, it is impossible to avoid introducing bleeding occasionally, in giving the modes of treatment that have been generally pursued; as few or none, who are opposed to bleeding, as a general thing, have given their views to the public on the treatment of animals. Mild means one preferable to bleeding.

As we give the modes pursued by those who practise bleeding, all who prefer that way can pursue it, and of course they will not complain; whilst those who depend more on other remedial means, will find that we have given various other remedies and modes of treatment, which may generally be substituted for bleeding by those who prefer them. Among the substitutes, are purgatives, diuretics, setons, abstinence, light feeding, astringents, anodynes, sedatives, &c. &c. Abstinence is far preferable to bleeding, as it is more convenient, more pleasant, and more economical; and in many cases, it will answer the same purpose, not only checking the disease, but removing the cause.

[See further directions and remarks on this subject, under different species of animals.]

BACK-RAKING.

This process is very useful in cases of fever, costiveness, colic, and other diseases, in order to favor the operation of purgatives and injections: for in these diseases, the dung in the rectum, or straight gut, becomes dry and hard, to the great inconvenience of the animal, and serious disadvantages as to the operation of medicines. When he has not dunged for some time, and a fulness is perceived about the flank and fundament, back-raking should be attended to, as follows:

Let the operator strip his arm bare, and having well anointed it and his hand with soft soap, lard or butter, preferring the first, the fingers should be brought to a point, and the hand gently introduced into the rectum and draw away the indurated fæces. This should be done several times, and then the animal should be left to himself a short time, while a drink for physic, or an injection, or both, as the case may be, is preparing. This simple process often affords much relief, and it is immediate, which is important in cases of great distress.

ACCIDENTS, &c.

Accidents and various affections are incident to animals, that are not readily perceived; therefore they should be thoroughly examined, occasionally, in every point, especially young animals, and those not generally used, so as to allow of casual inspection, in order to see that no accident has befallen them, or that some affection is not creeping upon them imperceptibly, that will, neglected, become a formidable evil.

It is highly important that animals be timely relieved from accidents, as sometimes a delay will prove fatal, and diseases of every description are far more easily cured, when taken in their first stages, than when they have

"Grown with their growth and strengthened with their strength."

A horse that appeared sick, was examined very attentively for the cause of complaint, and a piece of cob was found across the roof of his mouth, nearly stopping up his throat. This is only one among thousands of instances. There are numerous accidents and complaints with which animals are afflicted, that may escape the notice of a superficial observer, or that may occur on those animals not generally handled, and by neglect they may increase, from small beginnings, to severe and obstinate diseases.

HOLDING THE TONGUE WHEN GIVING MEDICINE.

That animals may swallow freely, and the medicine go down the right way, their tongues should be free As a caution on this point, a case was related to us for publication. An ox, after eating hearty, and drinking late in the morning, was puffed up. On being worked, the swelling went down. On drinking again at night, the swelling returned. Some medicine was prepared, but the swelling had abated, and the ox was eating hay. The medicine was given, to prevent a recurrence of the disorder. It was given by holding his tongue out of his mouth, and pouring the medicine down his throat. He breathed not again, but fell down, and died immediately.

On examination, his windpipe, for eight inches in length, was completely filled with chewed hay. It is supposed that on holding the tongue, the windpipe is open, and is liable to receive whatever is poured down the throat; and the reason that no more injury is done in this way, is because the medicines are generally liquid.

Pouring medicine down the throats of animals, with the tongue held, generally occasions coughing, which is doubtless owing to some of it going down the wrong way. The use of those parts connected with the roots of the tongue, is doubtless necessary in closing the passage into the windpipe, which is effected in the act of swallowing in the natural way.

MODE OF GIVING LIQUID MEDICINE.

Sometimes, when medicines have no nauseous taste, animals will drink them voluntarily. Or, if refused in this state, they may be induced to take them in palatable food. But there are numerous cases in which it is necessary to turn the medicine down the throat. Some use a junk bottle for this purpose; a horn is better, as a bottle is liable to be broken. In using a horn, stop up the large end, and pour from the small one, as it is less liable to waste.

MASHES.

Mashes of bran and shorts are a soft diet, and highly valuable for many purposes. They relax the bowels, and prepare them for administering physic with safety and good effect. They will, in common conditions, operate gently on the bowels, clearing out their contents, and thus save the necessity of resorting to purgatives. When horses are not used on Sunday, a bran mash may be given on Saturday night, instead of grain, which will have a favorable effect, and prevent injury from full feeding, while at rest. Mashes are very useful to horses in high condition.

As a food, mashes are remarkably soothing, cooling, and emollient. In all inflammatory complaints, and other disorders, when light feeding and laxative food are recommended, this will be found a most excellent article of diet, as it fills the stomach, affording the stimulus of distention, without furnishing much nutriment. It is like keeping the fat and gouty patient, who has had more than his share of the good things of this life, on turnips, or on bran or saw-dust pudding.

Mashes may be made of ground malt, bran, or shorts, or other similar substance, in hot or cold water. When the animal is in a weak or low condition, boiling water should be poured on the substance, so as to wet it well, then stir it thoroughly, and when lukewarm, give it. By boiling bran or shorts a short time, the water becomes thick, like mucilage; and we have no doubt that this process renders it more valuable as food, and more soothing.

In cases of catarrh or sore throat, or any intestinal affection, an emollient mash may be made by adding to the bran or shorts, a decoction of linseed or oil cake.

FOMENTATIONS.

These are highly valuable in opening the pores of the skin, and keeping up perspiration in the part, and thus abating local swellings relieving pain and lessening

inflammation. Hot or warm water may be used, or a decoction of any herbs. The principal virtue is in the warmth of the water or decoction. In obstinate cases of diseases, fomentations should be often applied, and continued long. They have a very soothing and sanative effect.

POULTICES.

An external application for producing inflammation, promoting suppuration, cleansing and preparing wounds or sores for healing; for mitigating pain, and preventing mortification.

Poultices are generally prepared with linseed meal, to which is added oil, lard, or other greasy matter, to prevent adhesion to the parts, and keep up the moisture for a longer time. Indian meal may be used instead of linseed meal, but it is not quite so soothing.

A good scattering poultice, to reduce inflammation, may be made of equal parts of hops, Indian meal, and pulverized slippery-elm, mixed with a strong decoction of raspberry or other astringent liquor. Any powerfully astringent substance may be used as a scattering poultice, and meal is good to form a body.

A poultice may be rendered more soothing by adding opium, or more active and drawing by adding turpentine, or chloride of lime.

For old sores or ulcers, the chloride of lime is excellent to add to the poultice; so is finely powdered charcoal; and both of these substances are good to prevent mortification.

The pulp of roasted carrots is a most valuable poultice for cleansing and healing old sores or ulcers.

Alum curd is a valuable application for ulcers. It has a very healthy effect, and tends to prevent mortification. Prepare it by putting powdered alum into new milk. No matter if there be more than will dissolve.

Wheat flour, mixed with molasses, and applied as a poultice, is somewhat drawing, and hastens suppuration. It is much used on boils to bring them to a head, that they may break, or be prepared for opening.

CAUSTICS.

Butyr (*chloride*) of Antimony is certain for destroying proud flesh, or otherwise unhealthy surface to which it is applied; and its destructive power is confined to the surface.

Lunar Caustic (*nitrate of silver*) is an excellent remedy for proud flesh. Wet a stick and rub a little on the part you would have affected by it.

Burnt Alum is a good caustic for the destruction of proud flesh. Sometimes it is not sufficiently powerful.

Blue Vitriol, (*sulphate of copper,*) one ounce powdered, and dissolved in a pint of water, forms a mild caustic. The powder, sprinkled on the sore or wound, is still stronger.

DISINFECTANTS AND ANTI-PUTRESCENTS.

These are chloride of lime, plaster of Paris, charcoal, and gum myrrh.

Chloride of Lime. — After contagious or infectious diseases in the cattle-house or stable, the walls, floor, and furniture should be washed a few times with it, and then the sound animals may return in safety. Applied to the pudenda of the cow, that has aborted, it destroys that peculiar odor which causes abortion in others, more effectually than any other preparation.

In blain, foul in the foot, and sloughing ulcers of every description, it removes the fetor, and if decomposition has not proceeded too far, it gives a healthy surface to the ulcers. Administered internally, in blain, in the malignant epidemic, and in diarrhœa and dysentery, it is highly useful. In the last disease, it is very beneficial in changing the nature of the discharge, depriving it of its putridity and infection, and disposing the surface of the intestines to take on a more healthy character.

Half an ounce of the powder, dissolved in a gallon of water, will give a solution of sufficient strength, both as a disinfectant applied to the cow-house, and as an internal or external remedy applied to the animal.

Plaster of Paris is a powerful disinfectant. It absorbs putrid smells, exhalations, and unpleasan gases, and tends to purify the air around. It is used in stables to absorb the ammoniacal gas, and render the air more wholesome.

Charcoal is, in many cases, used as a disinfectant, with wonderful success; a piece of fish, or meat, becoming putrid, is rendered completely sweet by being boiled with a few pieces of charcoal. In the treatment of ulcers and foul sores, finely pulverized charcoal is used as an ingredient in poultices, as it absorbs the fetor, tends to cleanse the sore, and, from its powerful anti-putrescent quality, it prevents mortification.

Some cases of mortification have been cured by this simple substance alone; but of late years, pyroligneous acid, containing the same anti-putrescent quality, has been used for this purpose, and with wonderful success.

Gum Myrrh is valuable. Apply it in a strong tincture of four ounces to a quart of alcohol. It is good to guard against mortification.

CLYSTERS, OR INJECTIONS.

Injections into the fundament are highly useful, when a speedy action of the bowels is required. Sometimes they are so obstinately constipated, the dung having become dry and hard, that physic will not remove the obstruction. In most cases of costiveness, clysters are more effectual in relieving and curing than purgatives. They should be used in all severe cases.

Clysters may be made of soap suds, in the proportion of two ounces of soft soap to a gallon of water; or for a more active operation, use half a pound of Epsom salts. In severe cases of colic and constipation, in order to open a way for the immediate action of physic, an exciting clyster should be given.

Mild injections, such as herb teas, warm water, gruel, &c., produce effects only from their softening influence, and mechanical effect, in expelling the hardened fæces; but exciting clysters have effect on the nerves, and influence the whole bowels, producing copious discharges far beyond their reach.

Soap has some exciting effect — salts increase it, but the most exciting clysters are made by adding to a gallon of any common injection, as herb tea, or the like, half a pint of strong decoction of tobacco, or a great spoonful of fine Cayenne pepper. The pepper produces a more speedy action. Lobelia, added to an injection, has an exciting effect; but if used liberally, it excites vomiting also. Any of these exciting substances, made up into a little ball, and put into the fundament, will excite the bowels and produce discharges; and sometimes they answer the purpose of an injection. In severe cases of costiveness, back-rake before giving injections, as this will render them more effective.

The importance of clysters is not sufficiently known. In numerous cases bipeds, as well as quadrupeds, are dosed and dosed with physic; days pass without relief, and the bowels are almost ready to burst with the powerful fermentation caused by physic, when the use of liberal and exciting injections would afford immediate relief, and save the patient from days of distress, from prostration, and serious and permanent injury in the bowels.

When the bowels are tender, or irritated, a soothing and emollient injection may be thrown far up the intestines, and brought in contact with the inflamed bowels, give relief and promote a cure by its soothing influence.

For soreness and tenderness of the bowels, use a tea of either of the following substances, as a soothing injection. Slippery-elm, bass wood (*linden*) bark, marsh-mallows, or flax-seed. Linden is similar to slippery-elm, but it has not so much virtue.

For inflamed and irritated bowels, or over purging, use a decoction of either of the following astringent substances: — Rosemary, barberry bark, cranesbill, hardhack, raspberry, and chocolate or Jones' root.

In locked jaw, or other affections, as sore or swelled throat, when the animal can take no food, nutriment may be given by injecting gruel. Let it be done in moderate quantities, that it may be retained.

There are various modes of giving clysters. The old fashioned way is with a bladder and pipe, and this will answer. By elevating the bladder, the liquid will be

jected from its weight. A syringe is good for this purpose. A pretty good one may be made of tin. In England, Reed's stomach pump is used for this purpose, in preference to all other apparatus.

ASTRINGENTS AND TONICS.

These medicines are of a binding nature, and tend to the reduction of inflammation, and to constipation in the bowels; on this account, while they are given, internally, to cure some disorders, it is necessary to use laxative food, such as mashes, potatoes, &c., or gentle physic, to keep the bowels in good condition.

Opium, or laudanum, is a powerful astringent, and it is also a good anodyne. It is used both for cattle and horses, for colic, spasms, locked jaw, &c. It should however, be given with great caution. It is mostly used internally. In fevers it irritates, but after a fever it soothes. The usual dose is one ounce of laudanum for a full-grown animal.

Alum, as an astringent, is used both internally and externally. Catechu is a powerful astringent, and is often given to animals. It is mostly used internally, but as a tincture, it is good externally. It is generally used in connection with other medicines, entering into the dose to the amount of four drachms.

Blue Vitriol (*sulphate of copper*) is used internally, to check nasal discharges, and externally for hoof-ail, warts, and sometimes, lightly, in the treatment of wounds.

Powdered Chalk is a valuable astringent in some cases, particularly as the alkali unites with the acid in the stomach and neutralizes it. There is much acid in the stomach of calves afflicted with dysentery; hence the advantage of supplying them with a lump of chalk to lick.

Black Cherry and Yellow Birch Bark are good astringents for the jaundice.

Raspberry Leaf Tea is a mild astringent, and an anodyne. It is used internally and externally. It allays inflammation of the bowels, and fever, and tends to the reduction of external inflammation or swellings.

Camomile is a mild tonic, and is sometimes given in doubtful cases, when, from a mistaken view of the disease, a powerful astringent might do injury.

ANODYNES AND SEDATIVES.

Opium, or laudanum, is a powerful anodyne, as well as astringent. A decoction of poppy heads, which farmers can raise, answers the same purpose, it being the same thing in another state. In human and animal practice, opium is used more than all other anodynes, by doctors of the old school. Thomsonian and botanic physicians use American valerian and Cayenne pepper

Fox-glove, or digitalis is a valuable and powerful sedative, and is considerably used. There should be caution in its use, as it is far more powerful when fresh.

A man was killed, in Boston, by taking a dose of fresh, the apothecary not being aware that it was so much stronger.

Raspberry is a sedative as well as astringent; it is a valuable medicine in numerous cases. It is not very powerful, but it is quite safe.

American Valerian, or lady's slipper, (*Cypripedium pubescens,*) is a valuable anodyne. There are several varieties, but they differ very little in their virtues.

Cayenne Pepper and Hot Drops are safe anodyns, and though stimulant at first, become sedative.

STIMULANTS AND CARMINATIVES.

These medicines, which warm and excite to healthy action those parts with which they come in contact, and tend to prevent flatulency and colic, are often used with the best success with purgatives, even in cases of inflammation. Hence ginger or other stimulants are added to aperient medicine, which greatly aid it in producing the desired operation; and hence the use of wine in low fever. The success of a purgative often depends as much on the stimulant accompanying it as on the medicine itself.

Ardent Spirits. Among the stimulants

minatives, are all kinds of ardent spirits though some may be modified, or have other qualities from the addition of other substances; as gin is made a sedative by the addition of juniper berries; and brandy is a powerful astringent as well as stimulant, from the addition of the extract of oak to alcohol.

GINGER is a stimulant as well as aromatic.

A WARM STIMULANT DRINK. Powdered ginger, half an ounce; caraway seeds, six drachms; allspice, half an ounce; in a quart of warm water-gruel, or ale.

CAYENNE PEPPER alone, or in compositions, is a powerful and highly valuable stimulant in the human patient. It is excellent in colds, clearing the pipes and lungs of phlegm; and in low condition it warms and revives; when the stomach is dormant, it rouses it to action, creates an appetite, and promotes digestion, and has many other favorable effects, when judiciously administered. It is equally valuable for animals.

It has been but little used in animal practice, therefore we cannot give precise directions for its use; but as it is powerful, it should be used in moderation. We have reports on few cases. A horse was drooping, and had no appetite; as his pulse was regular, he evidently had no fever. Two table spoonfuls of Cayenne pepper, and a small portion of ginger and lobelia, were given to him in warm water; and he soon revived and recovered. In another case, a horse had been driven nearly all day, and he failed, and refused to go, from disease, fatigue, or hunger; and, a physician being in the carriage with his medicine chest, he gave him a pint of *hot drops*, (a Thompsonian preparation in which there is Cayenne,) and he immediately revived, started off with spirit, and cheerfully performed the rest of the journey, of about seven miles. In both of these cases, we think the dose was very large, — large enough for two.

HOT DROPS are considerably used, of late, for horses. They are good for colic, for cold shivering fits, for a dull, low state, as they warm into action the dormant bowels, promote digestion, and thus create a healthy appetite. They are one of the best medicines.

AROMATICS AND STOMACHICS.

Stomachics are soothing, emollient, warming, and strengthening. They allay irritation in the bowels, reduce soreness and tenderness, and they warm and excite to action, the bowels, when in a torpor or dormant condition.

Powdered Caraway seeds are a good stomachic, but not equal to ginger, excepting in cases of flatulency Yet they may be used as an occasional change for ginger. Dose, from half an ounce to two ounces. Like ginger and other stomachics, it is often given in connection with other medicines, such as purgatives and astringents.

Ginger is the best aromatic in the list of cordials. Dose, from half a drachm to four drachms. Gentian is an excellent stomachic and tonic, whether at the close of illness, or as a remedy for chronic debility. The dose varies from one to four drachms, and should be almost invariably combined with ginger.

The following is an excellent stomachic: — Powdered ginger, half an ounce; powdered gentian, one ounce; carbonate of ammonia, (volatile salts,) two drachms; infusion of camomile flowers, one pint. Mix for one dose.

Sage, Pennyroyal, Peppermint, and other aromatic and warming teas, or essences, are good stomachics.

TO STOP BLOOD.

Cold water is often sufficient. Cobwebs applied to the wound, are a still more powerful remedy; so is a strong alum water, or powdered alum.

The soft, inner part of sole leather has a powerful effect in stopping blood. Scrape it fine, and apply it as lint, or apply a soft piece to the ruptured vessel.

Charcoal, in fine powder or dust, is a good styptic; so is a puff-ball. A strong decoction of sweet apple-tree bark has a very powerful effect in stopping blood, more so than most other styptics.

LINIMENTS, OPODELDOC, EMBROCATIONS, OINTMENTS, &c.

Opodeldoc. Three ounces common white soap; one ounce camphor; one eighth ounce oil of rosemary; one eighth ounce of oil of origanum; and one pint alcohol. Put all the articles but the soap into the alcohol, and when they are dissolved, cut the soap fine, and dissolve it in the alcohol, with a gentle heat. Pour into wide-mouthed vials or jars, to cool.

Liquid Opodeldoc. Take two ounces castile soap, instead of the common soap, as above.

Opodeldoc to scatter Swellings. Warm, over coals, one quart of proof whiskey, or other spirit, and dissolve in it half a pint of soft soap. When cool, put it into a bottle, and add one half ounce of camphor.

Liniment. The following liniment has been long in use, and is in high repute, being found very efficacious for sprains, bruises, cracks, sores, wounds, rheumatism, external or internal, in beast or man; and no family should be without it, or some other valuable liniment. Half an ounce spirits of hartshorn; two ounces camphor; one gill spirits turpentine; half pint sweet oil; and one pint alcohol. Shake all together, and apply, rubbing it in with the hand.

King of Oils. This name has been given to the following preparation, from its valuable effects in curing wounds in animals, particularly horses. It has performed surprising cures: —

1 ounce green copperas, (*sulphate of iron.*)
2 " white vitriol, (*sulphate of zinc.*)
2 " common salt, (*muriate of soda.*)
2 " linseed oil.
8 " molasses.

Boil over a slow fire fifteen minutes, in a pint of urine; when almost cold, add one ounce of oil of vitriol, (*sulphuric acid,*) and four ounces spirits of turpentine Apply it to the wound with a quill or feather.

Embrocation for Strains, Bruises, and Rheumatism Bay salt, four ounces; oil of origanum, one drachm

rub them well together, until the salt is reduced to a powder; then add half a pint of vinegar, two ounces of brandy, and one quart of water. Bathe the parts frequently with this. It is good for cattle, horses, and men, when the skin is not broken. Fomentation with hot water should precede the application. Bay salt is made naturally in the bays of St. Ubes, at high tides in spring and fall. It is the purest and best for medical and culinary purposes, containing 960 parts of chloride of sodium in 1000.

A Stronger Embrocation for deeply-seated strains. Spirits of turpentine, half a pint; oil of origanum, half an ounce; olive oil, a pint and a half; cantharides, one ounce. Mix together; shake often; keep in a bottle. Rub it in, morning and night. This is not intended to blister, and should it produce redness and tenderness, reduce it by adding olive oil.

Rheumatic Embrocation. Neat's foot oil, four ounces; camphorated oil, spirits of turpentine, and laudanum, one ounce each; oil of origanum, one drachm. Mix.

Camphorated Oil, or Stimulating Embrocation. Camphor broken into small pieces, two ounces; olive oil, or spermaceti, one pint. Put them into a bottle; cork tight; set it in a warm place, and shake it daily, until the camphor is dissolved. This is good for stiffness and swelling of the joints, rheumatism, &c.

Cooling Ointment. Melt lard five or six times, and cool, by pouring each time into a fresh pailful of water. Then simmer it with sliced onions, and it will make an excellent cooling salve, almost infallible for inflammations from taking colds in wounds.

Blistering Ointment. One part of cantharides, (Spanish flies,) finely powdered; three of lard, and one of yellow rosin. Melt the lard and rosin together, and add the flies when the other ingredients begin to cool. To make it more active, add one pint of spirits of turpentine.

Another. Yellow basilicon, one ounce; powdered cantharides, three drachms; spirits of turpentine, two drachms. This is applied to setons, to cause a more speedy operation, and a more powerful effect.

Another. Melt together four ounces palm oil, and

one ounce rosin; and when they begin to cool, add one ounce of finely powdered cantharides, and continue to stir the whole together till it is set. This ointment, if well rubbed in, will always blister, and never blemish.

Ointment to promote the Growth of Hair. Calamine powder, (an ore of zinc,) finely rubbed down, two drachms; levigated charcoal, one drachm; liquid turpentine, one drachm; lard, four drachms. Rub them well together; and then add one drachm of the last-named blistering ointment, and rub the whole together. Let this be well rubbed, but not hardly, into the part, morning and night.

Healing, Cleansing Ointment. Lard, two pounds, rosin, half a pound; melt together, and when nearly cool, stir in half a pound of very finely powdered calamine.

Ointment. Equal parts of Venice turpentine and lard, beaten together.

Compound, for Bruises in Horses or Cattle. One quart of vinegar; half an ounce of laudanum; and quarter of an ounce of sugar of lead. Mix well, and apply three or four times a day. If possible, apply a flannel wet with the mixture.

Vinegar and Salt. Strong vinegar saturated with common salt, used warm, is good for strains, and for reducing swellings.

For Swellings. One ounce of white vitriol; one ounce of green copperas; two tea-spoonfuls of gun-powder. Pulverize all, and dissolve in a quart of soft water. Use cold, rubbing it on thoroughly. A skilful physician informs us that he finds this powerful for the reduction of swellings. It was given to him by a man who had used it extensively and successfully on animals.

POISONS OF VARIOUS KINDS.

YEW.

The tender branches of yew are poisonous to horses, cattle, sheep and deer; and yet these animals have eaten of yew without injury. It is said to be harmless when

the animal has azotized food. Horses and cattle will graze by the side of growing yew, even hedges, and not touch it; but when it is dry, the appearance is changed, and then they will eat it freely.

Symptoms. They are affected in the brain, and with reeling and vertigo. They usually die suddenly.

Remedy. Give to full-grown horses or cattle, one and a half pints of linseed oil each.

Another. Give a strong dose of physic, in a pint of gruel, to which add a gill of vinegar.

CHERRY LEAVES. — PEACH LEAVES.

Several cases have occurred in which cattle and sheep have been poisoned by eating the leaves of the wild cherry; the tame cherry is equally poisonous. It has been stated that cherry-leaves are free from poison until the leaves have wilted, but cases have occurred in which the green leaves have poisoned animals. It is said that they contain *Prussic acid.* Peach-leaves are said to contain Prussic acid also, and they are supposed to be poisonous.

Remedy. C. O. Kimball, in the "Massachusetts Ploughman," recommends as a remedy a pint of New England rum, mixed with a pint of molasses, and given to each grown animal. Salt would doubtless be beneficial, as it is useful in cases of poison from the bite of snakes, sting of bees, &c.

ELM BARK.

A horse died from eating elm bark. On *post mortem* examination, it was found that the bark had produced a violent inflammation of the intestines.

LOW LAUREL OR LAMBKILL.

Sheep and calves will eat of low laurel, (*Kalmia angustifolia,*) in the winter and spring. They swell a little, grow stupid, and throw up greenish fluid, which runs out of the mouth, discoloring the lips.

Remedy. Gag the animal, that the fluid may be thrown out, and not swallowed, and give roasted onions and sweetened milk.

ANOTHER. Bruise well the green twigs of white ash; boil them one hour, in water enough to cover them when pressed down. Two table-spoonfuls will generally cure, if given within twenty-four hours of the poisoning.

ANOTHER. Take two quarts of pure red or yellow earth from under the surface soil. Pour on water enough to cover it. After ten or fifteen minutes, drain off the water, and give two or three table-spoonfuls for a dose. Give three or four doses, at short intervals.

ANOTHER. Give a gill of sweet oil, or castor-oil, — lard or fresh butter will answer, — in a pint of new milk, to each animal. In addition to any of these remedies, give salt freely.

BEECH-NUTS.

These are a good food for swine, a favorite with pigeons, and much admired by human bipeds; yet both the oil and the cake that is left after the oil is pressed out, are fatal to the horse, and have caused death in twelve hours.

WATER PARSLEY AND WATER DROPWORT.

Water Parsley has produced palsy in the horse. Water Dropwort has poisoned brood mares, and it has poisoned cattle early in the spring.

CROWSFOOT AND WATER HEMLOCK.

Crowsfoot, of some species, and Water Hemlock, have poisoned cattle in the spring, before other herbage started.

GARGET, OR POKE WEED, (*Phytolaca decandra.*)

The root of this plant, which is excellent for cattle, taken internally, or used as a seton in the dewlap, for the garget, is very poisonous to the horse. An ear of corn, with garget root in the pith of the cob, was given to a horse, and it killed him. A dose of garget was prepared in meal for a cow; she refused it and it was given to a horse, and was fatal.

MAYWEED.

Mayweed, (*Anthemis cotula,*) or wild camomile, has sometimes poisoned the horse, and produced death. He will not eat it green, but will when mixed with hay. We have taken a decoction of this plant, in strong doses, for a cold, (not being aware that it was poisonous,) for which it is very efficacious in producing perspiration, but we were never pleased with the taste nor the feelings produced from its use.

GENERAL REMARKS.

One of the best remedies for poisons is the use of the stomach-pump, by which water is thrown freely into the stomach, which often excites vomiting and gives relief, if this fails, the water may be drawn out, and the operation repeated. In this way the poisonous matter is diluted and removed.

Most vegetable poisons are acids, and alkalies will neutralize and destroy them. Ammonia, lye of wood-ashes, and pot and pearl ashes, are used for this purpose. We have inquired and sought in vain for a remedy for cattle that eat white lead, by licking paint on buildings.

BITES OF SNAKES.

Cut the wound and squeeze out the blood; then apply fine salt or some alkali, as named above. Give internally half a pint of olive oil, or rape oil, or half an ounce of volatile salt, dissolved in a quart of water.

We were told, in Pennsylvania, that a sure cure for the bite of poisonous serpents was cutting the wound to make it bleed, applying fine salt and pulverized gunpowder, and keeping the patient on sweet milk, until sickness ceased, which is generally in two or three days.

WOUNDS.

Dr. James Bates, Superintendent of the Insane Hospital, Augusta, Me., says, in the "Boston Cultivator," "The best possible coatings which can be applied to injured parts are, first, the blood, then the serum, the

coagulable lymph, afterwards the matured matter. It is the business of art to assist nature, and do that which she cannot do. In cuts and lacerated wounds, she has made no provision for bringing the sides into immediate contact. This should be done in the first place; and when this is impossible, then bring them as near as may be, with the least pain and irritation.

"In all cases of man or beast, if we can bring and retain together the sides of wounds by adhesive plasters and bandages, it should be done. If stitches must be resorted to, they should never remain more than thirty-six or forty hours, as they will have done all the good they are capable of in that time; and they will do injury if they remain longer. No stitch should ever be used over or near an important joint. In some rare cases, it may be necessary to put straight needles through the sides of a wound, and wind them with ligatures in the form of a figure 8; but they should never remain more than forty-eight hours.

"Discard healing-salves and plasters, as the healing process is carried on by the living functions of the animal, and not by what is applied. Applications are useful, not for their healing properties, but simply to exclude the air, and allow nature to do her work, and we should use the most inoffensive and least stimulating covering, such as one part of beeswax and two parts of lard, melted together.

"If the granulations become spongy, and a great flow of matter takes place, apply powdered rhubarb daily, or even some more powerful astringent, if necessary; this will give tone to the granulations. Should the matter from the wound become thin and bloody, attend to the general health of the animal. Old sores or ulcers, which refuse to heal, must be made new ones, by destroying the old surface by the knife, caustic or actual cautering, (hot irons,) and then treat them as fresh wounds. In some such cases, setons or issues, in adjacent parts, may aid the cure." Here is the conclusion of Dr. B.'s judicious remarks.

SIMPLE CUT WOUNDS.

When only small blood vessels are cut quite through they draw back, and the blood soon ceases to flow.

When wounds made by sharp instruments are considerable, they are generally attended by a flow of blood. If the effusion be great, and if, from its florid color, and flowing in jets, it appears to proceed from an artery, it must be quickly stopped. If there be no means of applying pressure on the course of the artery, *between the heart and the wound*, the finger may be introduced into the wound, and pressed on the artery, to stop the blood till the artery can be taken up, or some means used to stop it.

An instrument called *tenaculum*, which is a sharp pointed hook, is the most convenient for taking up an artery to be tied. A double thread being waxed, and an open knot made on it, it is put over the instrument. The artery is then laid hold of by the point, and drawn out a little, the open knot is slipped over it, and firmly drawn, and the ends of the thread allowed to hang from the wound. Veins may be secured in the same way.

If a blood vessel cannot be tied, and no means used to stop the effusion, fold a piece of linen rag to a quarter of an inch in thickness, and apply it to the orifice of the blood vessel, and press it with the finger, first wetting the rag in strong alum-water. [See directions to stop blood.]

The cure of wounds is effected by adhesion or suppuration. When the sides of a fresh wound *are brought into accurate contact, and kept together*, they adhere very soon, and the wound soon heals, with little or no trouble. This is called healing by the *first intention*. The flesh of horses does not unite so readily by the *first intention* as that of other animals, and the wound is more likely to heal by suppuration.

PUNCTURED WOUNDS.

These are made by pointed instruments, splinters of wood, bites, &c. They are more dangerous than cut wounds, as they excite more inflammation, and it is diffi

cult to get the sides to adhere uniformly. When the orifice heals before the bottom of the wound, collections of matter are formed, which corrode the parts. Poultices are useful in such cases. Fomentations with a decoction of camomile flowers may be preferable. It is sometimes necessary to make an incision, to allow the collected matter to escape.

CONTUSED AND LACERATED WOUNDS.

In such wounds, the parts are torn or bruised, so as to leave the texture destroyed. There is less *appearance* of danger in these, as well as in punctured wounds, from the flow of blood usually being less; yet there is the more to be dreaded. The danger of wounds is too often estimated from the flow of blood alone, yet from the most dangerous, there is sometimes no flow whatever.

When the texture of the wounded parts has been completely destroyed, or wounds have been neglected or badly treated, healing must be effected by suppuration. After the wound has been cleansed, and freed from all extraneous substances, such parts as are almost torn or squeezed off, should be removed. But if the parts are not much injured, there is a chance of their adhering, if placed as nearly as possible in their natural position. The wound should be carefully guarded against exposure, but not tightly bandaged. As it proceeds, it may be cleansed and softened, by washing with Castile or mild shaving soap. Some mild and emollient salve may be used to keep the parts soft and pliant.

In case of inflammation, poultices may be used to bring on suppuration. A large, warm, oiled poultice, folded in a piece of thin linen or muslin, should be laid over the wounded and neighboring parts, and changed twice a day. Unless the injury is very severe, this treatment will probably soon bring on the formation of good matter, and the parts where the texture is completely destroyed, will slough or mortify, and fall off. When this has happened, and the inflammation has abated, the poultice should be discontinued, and some mild and soothing salve used to promote the healing.

But sometimes, instead of the suppuration, there is

violent inflammation, that causes a mortification in the surrounding parts, which is attended with danger. When there is no indication of a suppuration, and mortification is apprehended, use a scattering poultice, (as on page 53,) to which add freshly burnt powdered charcoal, which is a preventive of mortification, from its disinfecting and anti-putrescent qualities.

WOUNDS IN THE JOINTS.

These are very difficult to manage. A cure may be attempted by keeping the air from the wound, and bringing the sides into contact by adhesive plaster, and employing poultices. An extensive wound in a joint is generally incurable. For joint or sinew water, burn a cork to a coal, pulverize it finely, and put the dust into the wound.

MAGGOTS IN WOUNDS.

These may be destroyed by tar or honey; both are healing; but tar is too harsh alone; mix it with lard, and it will be equally good against worms.

BROKEN BONES.

The mending of a broken bone is by no means difficult, when the parts covering the bone have not been injured. Let the limb be stretched, and the broken ends of the bone placed as nicely together as possible, and held in that position till a piece of stiff leather, or thin wood, as a splint, is laid along, so that it may extend a few inches beyond the contiguous joint. This must be kept in its place by winding flannel, an inch and a half broad, and as long as may be necessary, around it.

The splint should be worn ten days or a fortnight; and after it has been removed, the bandage should be continued moderately tight, till the limb has acquired its former strength. When any considerable swelling appears, the bandage should be slackened, and tightened again when the swelling abates. When a bone is broken in more than one place, all the pieces are to be brought into their proper place, and secured.

Sometimes a fracture is made, and a part of a bone protrudes through the skin. In such case, a wound must be made of sufficient length to allow the bone to be replaced; and it may be proper to remove some of the splintered portions by a saw or nippers. The splint and bandage must then be applied in such a way as to leave the wound accessible, that it may be dressed.

Some persons kill an animal on his having a limb broken, supposing that there is no cure. But we have known cases of broken bones, that, by careful setting, splintering, and good management, have been cured, and with but little trouble. The following is from the Farmers' Cabinet: —

BROKEN BONES CURED.

An idea prevails with many persons, that broken bones of horses and other quadrupeds cannot be cured, owing to the difficulty of keeping the part sufficiently at rest during the time necessary for a broken bone to heal.

I heard of a case, some months since, which was successfully treated in the following manner, viz.: — Two pieces of scantling sufficiently strong to support the horse, were placed over and parallel with him in the stable; a piece of strong linen was then passed under him, and the two opposite ends confined to the scantling, so as to raise him from the floor; a wooden box was provided with a bottom, two sides, and one end, composed of boards nailed together, and of sufficient length, width and depth to contain the leg from the knee to the foot, inclusive, besides a space of half an inch or more, on each side of the leg, to admit the necessary bandages, &c., with the bottom cut away sufficiently for the foot to enter, and retain its natural relative position with the leg.

The broken leg was confined in this box, and treated in the usual manner, and the box, together with the leg from the knee to the foot confined in a horizontal position, or nearly so, by straps of leather passing over the horse's back, and the two ends confined to the box; the horse was permitted to put his other three feet upon the floor, sufficiently to preserve a healthy action of the

limbs, but not so as to displace the broken limb in the box. A cure was effected in a few weeks. This was one of the fore legs. I see no difficulty in treating the hind leg, by partially suspending the animal in this manner, and varying the other parts according to the particular nature of the case.

The following singular cases are from J. Sanford, of Marcellus, New York, as appears in the Genesee Farmer: —

YOUNG CATTLE THEIR OWN SURGEONS.

I had a very fine young bull, which I found with his right fore leg broken, about half way between the knee and fetlock joint. The bone was not only broken, but appeared to be shattered in pieces for several inches, and pricked through the skin. I got him up, and, on three legs, he worked his way six or eight rods, to an open shed, where he could be by himself. I splintered and bound up the leg as well as I could, and left him for the night; but in the morning, the bandage was off. He had got up, and moved about, and sometimes bearing on the foot, which had nothing but the skin and tendons to support it. I saw no way to manage it better, and gave it up, and sent for a man to kill him. But, on further reflection, as he ate well, and was contented to stay where he was, I concluded to let him live, if he would, and see how he would manage it himself, and let the leg alone. He kept in flesh; would move about two or three rods, and I have seen it bent at nearly right angles. No appearance of healing the bones in sight, when the leg was bent, I concluded it would perish, and come off. In this manner he continued, until the first days of May, near three months, when I moved him to a pasture, having good shade and water.

Then he adopted a course of conduct for himself; had his abode at a fine maple-tree; would get up, feed round as far as necessary to get a good bite of grass, go to the water two or three rods, and back to his tree. In this way he continued about two months; was in good health, gained in flesh, and, except the leg, appeared

fine. The leg had been enlarging some time, and now was double the size of the other at the place broken, but as yet had no strength, and would yield to pressure and bend about, as he happened to hit or bore any weight upon it, and during this time, several bones had worked out of the wound, which still kept open, to which no application was applied, except his own tongue, which was very frequent. I saw him from day to day, and watched the progress until about the middle of July, when I found he could bear some weight on it, and was getting into shape; and about one month more it became strong; the wound had healed, and he walked as well as ever. The joints above and below were perfect, the leg straight, the length exact with the other, and as good, but for the odds in size. He was in fine condition, competent for all purposes by September, and fought as good a battle as others. When coming four years old, I fattened, and butchered him; and sawed up the leg, and found an entire new bone had formed, of about three and a half inches in diameter, and graduated above and below so as to fit the former, and no appearance of the old one for six or more inches, which had doubtless been discharged as I stated above.

Also, I have now a fine three year old steer, which had his thigh broken by the kick of a horse, at about seven months old. Him I left to manage as he might. He was in a distant pasture with a large lot of other young cattle; took his own position wide from the rest, and in about two months he got well; and now no one, without a close examination, would suspect that he had ever met with the accident.

INVERSION OF THE RECTUM.

Sometimes, from straining in dysentery, a portion of the rectum comes out of the fundament, and the animal cannot draw it back. Give a pint of castor-oil, with two drachms of opium, to a full-grown animal, as an ox or horse. The part protruded should be cleaned with soap suds; then fomented an hour with a decoction of poppy heads, or other mollifying herb, and then gently return it. Cold water should then be applied around the anus

LOCKED JAW, OR TETANUS.

This is the effect of some acute disease, and in some cases it is a symptom of approaching death. In most cases, the muscles of the jaws become so contracted and rigid, that it is impossible to open the mouth to give food, or medicine, and the animal dies of starvation. In some cases, a tooth has been knocked out, and medicine given that has relieved and cured.

Causes. Pricking in shoeing, running a nail or other thing into the foot, or other parts where there are many nerves. Also, turning animals out on cold, wet nights, after hard work and perspiration, and over driving. Docking and nicking horses are causes, also.

Symptoms. In the horse, there is a stiffness of the neck and tail, and a constant spasm of the muscles of voluntary motion. It is seldom preceded by any serious illness, although the horse will appear dull for a few days. As it approaches, he gulps his water, (swallows with forcible action,) and quids his hay, (partly chews and lets it fall out.) He stands stiff, with his legs bracing, his tail quivering, and despair in his looks.

In cattle, the animal is *off his food*, and ceases to ruminate, and stands with head protruded; but as there is no dryness of the muzzle, or coldness of the ears, the attendant may not be alarmed, and not thinking of the locked jaw, the animal is neglected. He continues the same, rarely moving, and when made to turn, moves stiffly. By examining the mouth in season, the disorder may be known, and the animal saved.

Remedy. At the Maryland Farmers' Club, Mr. Pearce. U. S. Senator, stated that he had a horse that stepped on a nail, and symptoms of locked jaw appeared eighteen days after. He being absent, no remedies were used till the third day, when the animal was bled, and aloes administered, but without effect. He could scarcely walk; his nostrils were distended and inflamed; his breathing difficult; his tail stiff; he could not bend his neck, and could eat nothing but a little mash.

Galvanism was then tried, in shocks as severe as the horse could bear The currents were first passed through

the head, and then applied at different points along the spine. His tail and neck soon lost their rigidity, he moved his limbs rapidly, and kicked smartly. These applications were repeated five or six times, with intervals of a day or two, beginning with slight shocks, and gradually increasing them.

His neighbor insisted that he should also try his remedy, which he said he had tried five or six times with complete success. Accordingly, the horse was plunged into deep water every day, and made to swim three or four minutes. He improved slowly. In a fortnight he was turned to grass, and the harness put on him in a month. He became well, and as active and spirited as ever.

ANOTHER. Some very severe cases have been cured by dashing thirty or forty pailfuls of cold water suddenly all over the animal, and repeating the operation, if necessary, at intervals of two hours. This was recommended by the late eminent Dr. Rush. A mare that seemed almost dead with locked jaw, was revived and cured by repeated applications of cold water.

ANOTHER. Mix strong soft soap with pulverized chalk, so as to make them of the consistence of buckwheat batter. Apply this to the wound that causes the locked jaw, or from which it is apprehended, and keep the chalk moistened with soap, until the wound begins to discharge, and the patient is relieved.

NOTE. In cases of human patients, it is said that the application of a piece of brass or copper, — if rusty the better, — a cent, for instance, is excellent for drawing a wound made by a nail in the foot, and thus prevents the locked jaw. In cases of a nail in the foot, we have used, and known others to use, with excellent success, the rind of salt pork, the flesh part applied to the wound, and, in severe cases, renewed every day.

ANOTHER. English authorities recommend bleeding freely, almost to faintness; and when the jaws have relaxed, give gentle physic, and turn it down slowly, (in cattle or sheep,) that it may go into the fourth stomach and not into the paunch, as it will if poured down at once. At the same time, administer clysters every three

hours, till there is an operation on the bowels. If the physic does not operate in eight hours, repeat half doses every six hours. After purging is established, administer some sedative, such as opium. Give the animal mashes at first, and then light food, sparingly. He will need many kind attentions.

Another. It is stated in the "Boston Medical Journal," that Dr. Isaac Heister, of Reading, Pa., cured a boy, sixteen years old, by the use of a solution of the extract of Indian Hemp, (*Indica cannabis* — but *Apocynum cannabinum* of Bigelow.) He directed an aqueous solution, containing two grains to the tea-spoonful, to be administered at intervals; and in the course of a few days, the patient was entirely relieved.

RHEUMATISM IN THE JOINTS.

Cattle and horses, from great exposure to cold and wet, particularly cows after calving, have a stiffness in the joints; they sometimes swell, and cannot be bent without pain and difficulty.

Remedies. Good shelter, and sulphur and ginger; and rub the joints with camphorated oil, or spirits of turpentine. Turpentine and hartshorn are good. In bad tumors of the joints, rub on iodine. Use the solution of the chloride of lime with water, for ulcers about the joints. [For further remedies for rheumatism, see Liniments, &c., page 51.]

INFLAMED AND SORE EYES.

Causes are various; sometimes from colds. It is often caused by a diseased state of the body, or head, and is only a symptom of disease.

Remedy. Remove the cause. If the system generally, or the head, is diseased, restore it to a healthy condition. The eye is one of the most tender and delicate organs, and if its texture is destroyed, nature will not restore it. Therefore, put the body in that healthy state that will carry restoration to every diseased part, and use only mild applications to the eyes.

For Inflamed Eyes, foment them in a strong decoction of raspberry leaves, or beech bark, or other astringent tea.

Another. Put a handful of the inner bark of sassafras twigs, of one year's growth, into a pint of cold water; let it stand several hours, and it will become a thick mucilage; wash the eyes out well with this.

The Haw of the eye, in the horse, is a membrane that is used to clear the eye of dust and protect it from injury. It descends and returns with astonishing velocity. When the eye is inflamed, the haw hardens and projects; and some ignorant persons cut it off, to the serious and lasting injury of the poor animal.

For Sore Eyes, wash them in Castile or other mild soap; this will have a cleansing and curative effect. Warm milk and water is a soothing wash, and if honey or molasses be added, it will be still better. A weak lye of the ashes of beech bark is excellent for sore eyes.

For Weak Eyes, wash them in warm milk in which camomile has been steeped. Raspberry tea is also good.

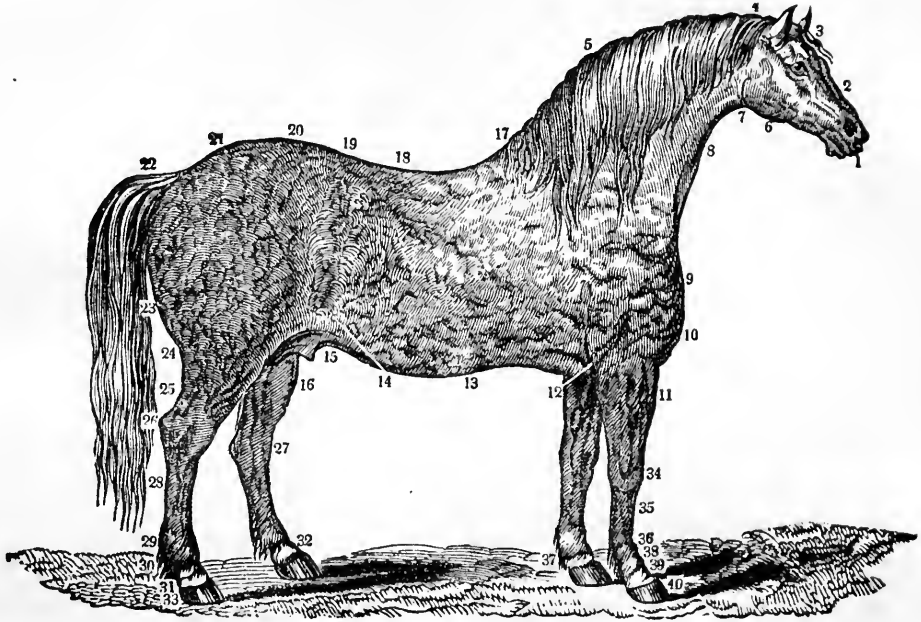
FOR A FILM ON THE EYE.

Pulverize loaf sugar finely, put it in a quill, and blow it into the eye. We have observed excellent success to attend this simple remedy. In some cases, sight has been restored when the animal had become completely blind.

Another Remedy. An effectual mode of removing a film from the eye of an animal is, to apply a tea spoonful of molasses to the eyeball; so says one who has cured oxen, horses, cows, and sheep in this way.

Another. Mr. Isaac Hamblin, of Livermore, says in the "Maine Farmer," if the *left* eye be injured, he puts a piece of fresh butter, as large as a hen's egg, into the *right* ear; and if the *right* eye be affected, into the *left* ear. If the film is of long standing, two applications may be necessary. It will remove it in a short time. He has tried this remedy for forty years, without failure.

To Prevent a Film. If any horned creature should have a film growing on the eye, from a hurt, put in the salt. It is a sure cure. but rather harsh.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HORSES.

TERMS DENOTING THE EXTERNAL PARTS OF THE HORSE.

1. Muzzle.
2. Race.
3. Forehead.
4. Poll.
5. Crest.
6. Jowl.
7. Gullet.
8. Windpipe.
9. Point of the Shoulder.
10. Breast or Bosom.
11. Arm.
12. Elbow.
13. Girth.
14. Flank.
15. Sheath.
16. Stifles.
17. Withers.
18. Back.
19. Loins.
20. Hip.
21. Croup.
22. Dock.
23. Quarter.
24. Thigh or Gaskin.
25. Hamstring.
26. Joint of the Hock.
27. Ham or Hock.
28. Common.
29. Fetlock.
30. Large Pastern.
31. Small Pastern.
32. Coronet.
33. Hoof.
34. Knee.
35. Common.
36. Fetlock.
37. Heel.
38. Large Pastern.
39. Small Pastern.
40. Hoof.

The engraving on the left represents the English cart-horse, to which the highest prize of the Royal Agricultural Society was awarded, in 1843. These horses are of a large size, distinguished for strength and endurance, and are well adapted to slow, heavy draught.

DESCRIPTION OF A GOOD HORSE.

The head should not be large, but rather light, and neatly, not abruptly, affixed to the neck; the eyes bright, full, rather prominent, and set well apart; horses with white, or wall-eyes, cannot see well, and are more liable to be skittish; eyelids thin and dry; the quir. high in the forehead; ears thin, narrow, erect, of mid. dling leng h, and not distant from each other; forehead

flat, not too large or square, and running nearly in a straight line to the muzzle; nostrils capacious; muzzle small and fine; lips thin; mouth tolerably deep; the jaw bones wide at top.

The neck rather short and light, as the reverse, as well as a heavy head, induces stumbling; it should not be gross and thick, nor large and deep, but rising strong and promptly from the shoulders and withers, and afterwards declining and tapering to the head, with a strong crest, and somewhat crowning at the top; on the under part, the neck should be straight from the chest, and by no means convex.

The shoulders capacious, of large extent, and spreading well back; they should reach fairly to the top of the withers, which should be well raised, but not too high; if the withers are low and flat on the top, the horse will be inclined to plunge and stumble; the chest should be deep, rather broad, and full.

The body substantial, deep, and round, a cylinder being the best form for capacity; round horses have the best wind, as their lungs have full play, and they keep in the best condition, and require the least food; the back a plane of good width, handsomely rounded; back bone straight, or with a trifling inclination, and rather short; a very short back indicates strength, but not speed and action; loins wide, and the muscles of the reins full and swelling on each side the back bone, ribs well rounded out; the hip bones thrown well forward, forming a strong loin, with a sufficient space between the ribs and hip bones, which should be round; the buttocks deep and oval; the rump level with, or not much elevated above, the withers; the croup must have reasonable space, and not sink too suddenly, as that would set the tail too low, which ought to be nearly on a level with the back; the dock should be strong, and well covered with hair.

The hinder quarters should spread to a wider extent than the fore parts, and the hind feet stand further asunder than those before; the thighs should be straight, large, muscular, and of considerable length; the hock wide and clean; the shank not too long, but flat, and of

sufficient substance, its sinew large and distinct; the fetlocks long; the hocks should form an angle of such an extent as to place the feet immediately under the flank.

The fore arms, like the thighs, should be large, muscular, and of good length, the elbows not turning outwards; the knees large, and lean; the shank, or cannon bone, flat, strong, and not too long; the tendon large; the fore arm and shank must form nearly a straight line; fetlock joints large and clean; pasterns inclining to a certain degree, not too long, but large in proportion to their length; the coronary rings not thick or swelled, but clean, dry, and hairy; the feet neither too high nor too flat, and of size apparently a sufficient base for the weight they have to sustain; hoofs, of color dark and shining, without seams or wrinkles, tough and strong, not hard like oak; foot internally concave, sole hard, but not shrunk, heels wide and of middling height; frog not too large or fleshy, but tough and sound; the feet of equal size, should stand exactly parallel, so that the front or toe incline neither inward nor outward; the fore feet should stand perpendicular to the chest; not too much under it, and they should be less wide apart than the fore arms; the legs should not be loaded with hair.

CHOOSING A GOOD HORSE.

Besides regarding the most prominent marks of a good horse, there are many other things to be taken into consideration. Perfect feet are indispensable. A horse with bad feet is always unsafe; he will trip, and is very liable to fall. Any tenderness or uneasiness about a horse's feet renders him unsafe.

When a horse is offered for sale, the purchaser should ask one question, viz: — "Is he, in all respects, perfectly sound?" Should a cheat be practised, damages could be recovered. View his feet and legs; large ridges on the hoofs, or very flat feet, discover a horse to be subject to founder; large, gouty legs, with enlarged tendons, indicate strains and other injuries. Examine his hind legs with great attention, just below the hock, and inside the hind knee; if there is any unnatural prominence, or

knot, unlike the other knee, it wears the appearance of spavin, which renders a horse of but little value. Splent, which appears on the inside of the fore leg, and wind-galls, upon the ankles, are unpleasant to the eye, but seldom produce any other injury than stiffness, as he advances in years.

Ride, yourself, for the purpose of trying his gaits and other qualities, as a rider accustomed to a horse by private signs, such as manner of riding, bearing on the bit, leaning forward or backward, holding the heels close to the sides, &c., can make a dull horse appear gay and spirited; a wild horse, gentle; a stumbler, sure-footed; one that is blind, appear to see; and a starting horse, free from that great objection, &c. Before mounting him, examine his knees, to discover if they are skinned, the hair off, or scarred. These are strong symptoms of his politeness, to a fault. Ride with your bridle loose, over an uneven ground; if he is in the habit of stumbling, he will very readily inform you. Then approach some object offensive to the sight; if he appears much alarmed, you may judge he has long been in the habit of that bad practice. Ride him in all his different gaits, to ascertain if they are smooth, easy, and agreeable. Move him about a mile, out and back, in fully half speed; frequently stopping him suddenly, to try his wind; also if he is spavined. If his wind has been injured, he will blow unnaturally, making a loud wheezing noise, with great difficulty of breathing.

When a horse is rode by any person for you to judge of his gaits, you should have him moved towards you, from you, and finally by you, that you may have the opportunity of discovering if there is any turning in or about his knees and ankles, before or behind. A well-shaped horse will track as true, or his legs will follow each other in as direct a line, as the wheels of a well constructed carriage. Hard steps, short going, and great apparent labor, is offensive to the sight, unpleasant to the rider, and fatiguing to the horse himself.

The following judicious remarks on choosing a horse are from Dr. Paul Jewett, of Rowley, who, some forty or fifty years ago, conferred an important favor on the pub-

lic by valuable directions for managing stock and treating sick animals:

"There is much pleasure and profit in the service of a good horse, and but very little of either in a bad one. There are many mean horses that make a good appearance when taken from the hands of a jockey. In purchasing a horse, then, trust not too much to the seller's word; let your own judgment, or that of a friend, be chiefly relied on. See that he has good feet and joints, and that he stands well on his legs. See that his fore teeth shut even; for many horses have their under jaw the shortest; these will grow poor at grass. See that his hair is short and fine, for this denotes a good horse. Observe his eyes, that they are clear, and free from blemishes; that he is not moon-eyed, or white-eyed; for such are apt to start in the night. A large, hazel colored eye is the best.

"Take care that his wind is good; let him be fed on good hay for twenty-four hours; take him then to water, and let him drink his fill, placing him with his head the lowest; if then he will breathe free, there is no danger. See that his countenance is bright and cheerful. If his nostrils are broad, it is a sign that he is well winded; narrow nostrils, the contrary.

"See that his spirits are good, yet gentle and easily governed. In travelling, mind that he lifts his feet neither too high nor too low; that he does not interfere nor overreach, and that he carries his hind legs the widest. Age from five to ten is the best. There are many tricks practised by jockeys, to make horses appear young. Horses' teeth, when young, are wide, white and even; the inside of their mouth is fleshy, and their lips hard and firm. On the contrary, the mouth of an old horse is lean above and below; the lips are soft and easily turned up; their teeth grow longer, narrower, and of a yellow color."

TO ASCERTAIN A HORSE'S AGE.

The age of a horse is only determinable with precision by his teeth; and that rule fails after a certain period, and is sometimes uncertain, even within that period. A horse has 40 teeth; namely, 24 double teeth or grinders, 4 tushes or single teeth, and 12 front teeth or gatherers. Mares have no tushes, in general. The mark which discovers the age is to be found in the front teeth, next the tushes. In a few weeks, with some, the foal's 12 fore teeth begin to shoot; these are short, round, white, and easily distinguishable from the adult or horse's teeth, with which they come afterwards to be mixed. At some period between two and three years old, the colt changes his teeth; that is to say, he sheds the 4 middle fore teeth, 2 above and 2 below, which are some time after replaced with horse's teeth. After three years old, 2 others are changed, one on each side the former; he has then 8 colt's and 4 horse's teeth. After four years old, he cuts 4 new teeth, 1 on each side those last replaced, and has at that age, 8 horse's and 4 foal's teeth. These last new teeth are slow growers, compared with the preceding; they are the corner teeth, next the tushes, are called pincers, and are those which bear the mark: this mark consists in the tooth being hollow, and in the cavity bearing a black spot, resembling the eye of a bean. The tushes may then be felt. At four years and a half old, these mark teeth are just visible above the gum, and the cavity is very conspicuous. At five years old, the horse has shed his remaining 4 colt's teeth, and his tushes appear. At six, his tushes are up, and appear white, small and sharp, near about which is observable a small circle of young growing flesh; the horse's mouth is now complete, and the black mark has arrived at, or very near, the upper extremity of the corner teeth. At seven, the 2 middle teeth fill up. Between the seventh and eighth year, all the teeth are filled up, the black mark has vanished, and the horse is then said to be aged, and his mouth full.

From that time forwa d, the age of the horse can only

be guessed at from certain indications; but these guesses are usually made with considerable accuracy by experienced people. If his teeth shut close, and meet even, are tolerably white, not over long, and his gums appear plump, you may conclude he is not yet nine years old. At that age, and as he advances, his teeth become yellow and foul, and appear to lengthen, from the shrinking and receding of the gums. The tushes are blunt at nine; but at ten years old, the cavity or channel on the inside of the upper tushes, until that period to be felt by the finger, are entirely filled up. At eleven, the teeth will be very long, black, and foul, but will generally meet even; at twelve, his upper-jaw teeth will overhang the nether; at thirteen, and upwards, his tushes will be either worn to the stumps, or long, black and foul, like those of an old boar. Beside those exhibited by the mouth, nature ever furnishes a variety of signals, denoting the approach of old age and decay, throughout the bodies of all animals. After a horse has passed his prime, a hollowness of his temples will be perceived, his muscles will be continually losing something of their plumpness; and his hair, that gloss and burnish which is the characteristic of youth and prime, will look dead, faded, or entirely lose its color in various parts. In proportion to the excess of these appearances, will be the horse's age.

The following are among the devices practised by a set of unfeeling rascals, who have no other rule of conduct than their supposed interest to counterfeit the marks of age in horses. At four years old, they will frequently knock out the remaining colt's teeth, in order to make the horse appear five; but you will be convinced of the fraud by the non-appearance of the tushes; and if it be a mare, by a shortness and smallness of the corner teeth, and, indeed, of the teeth in general. To give an old horse the mark, is termed to bishop him; from the name of a noted operator. They burn a hole in each of the corner teeth, and make the shell fine and thin, with some iron instrument, scraping all the teeth to make them white; sometimes they even file them all down short and even.

BLIND BRIDLES.

"Look and reflect; use your own intellect."

"Yes, use your thinking powers, friends; they were given you to use, and not abuse. Blind bridles! truly named, surely. Art never invented a more fatal thing to the eyes of horses than when she devised this plan of depriving the horse of what nature intended he should enjoy. But, says one, how are blinders injurious to the horse? Because they gather dirt and heat around the eyes Dirt irritates the eye, and heat produces inflammation. These bridles so entrammel the eyes of the horse that he is compelled to be constantly straining them, to see his way. The over exertion of the nerve brings on disease. Eyes were not made in vain. Had they been needless, the Creator would not have located them in the head. They were placed on the corner of the head that he might have the advantage of looking in different directions. Men, in the abundance of their wisdom, concluded the horse had too much sight, and they wished to curtail it; hence the origin of blind bridles. Think of this seriously, and you will abandon the use of so destructive an appendage. Remember, that blind bridles and diseased eyes are inseparably connected. Custom hoodwinks the senses of men as much as blind bridles do the vision of horses." — [J. MADDOCK, *Farrier.*]

We once had a young horse that was so frightened on removing the blind bridle to bait him, which suddenly brought the chaise to his sight, that he was restrained with great difficulty, and would have cleared with the carriage, had he not been pent up by the fence. We never used the blinders again, but made him familiar with carriages before harnessing him.

Without blinders, horses can see objects as they approach them behind, but when blinded, the object comes close and suddenly upon them, and often occasions affright.

CHECK REINS.

The check or bearing reins of a horse answer no good purpose, but are a great evil; a severe restraint and vexation; confining his head in an unnatural position, by which he is constantly tormented. He cannot travel at ease, nor see impediments in the road, and, when he makes a misstep, is more liable to stumble.

We have observed that the greatest travellers are those horses whose humane masters have allowed their heads to be free; and as they draw a load up hill, a motion of the head is perceived, which supports the motion of the feet and legs, in the same way as a man, in walking, assists the motion of his legs by a counteracting motion of the arms. How would a man walk with his arms tied to his sides? Let those who torment their horses with unnecessary restraint, try it on themselves.

Besides these serious disadvantages in travelling, the horse, by the use of the fixed bridle, is in a painful position at all times; even when standing, he cannot rest at ease, but is incessantly tossing up his head, to get momentary relief from this painful position; which violent and constant action produces inflammation and ulceration on the point upon which the head articulates with the spine; hence the poll evil, and here we have the reason for this formidable disorder being almost exclusively confined to carriage horses.

We found, a long time since, by experience and observation, that horses would travel better, perform more labor, and were less liable to stumble, when their heads were free; therefore, we abandoned the cruel practice; and we hope that it will be totally abolished, and, with that absurd custom of using blind bridles, sink into oblivion, so that, in regard to these fashions, our grandchildren may laugh at the folly of their forefathers.

STABLES.

Stables should be on an elevated, dry situation, so that a horse can go in and out, clean, in bad weather. He delights in cleanliness, and would snuff the pure breeze, and slake his thirst at the crystal fountain. Stables should be capacious, and well ventilated. These are important requisites to the health and comfort of the horse. All offensive matters should be removed from the stable, lest diseases be generated. After cleaning the stall, strew plaster on the floor, to absorb the gas. This will pay all expense, in the improvement in the manure.

Stables should be light, but a very strong, glaring light should be avoided. Dark stables are injurious to the eyes; so is the ammonial gas that arises from impure stables. Close, hot, foul stables, are very unwholesome. They not only cause disease, but they make the horse tender, and predispose him to other diseases than those generated in the stable.

Over the horses, stables should be ceiled tight or plastered, to prevent the hay from being scented by the exhalations from the dung, urine, perspiration, and breath.

The rack should be smooth, and the uprights about four or four and a half inches apart, so that the horse can conveniently draw out the fodder, and yet not draw it out so fast as to waste it. The part of the rack next the horse should be upright, that the chaff, dust, and seed, may not fall down into the horse's face, eyes, ears, and mane. In some stables in England, there is no rack, all the fodder being cut, and fed into the manger. The halter should run through a ring, or hole in the manger, and be kept tight by a weight of about one pound; then, when the halter is slack by the horse's advancing, it is drawn up out of the way, so that he cannot step over it. If the length of a halter is stationary, it is too short to allow the horse to lie down; or so long that there is danger of his stepping over it, and

being cast. Many a fine horse has been ruined in this way.

The stalls should be four and a half or five feet wide, that the horse may lie down with ease. As a level position is most natural for the horse's feet, the floor of the stall should slope barely sufficient to drain off the urine.

STABLE FLOORS.

There is no doubt that a floor of plank, or other hard substance, is injurious, not only from its hard, unyielding nature, but from its keeping the fore feet dry. The horse, in his natural state, stands on a soft and yielding substance, and which is often moist. The hoofs of horses are a horny, porous, elastic substance, often receiving moisture, which is necessary to their well being. The constant dryness of their fore feet in stables, may account for their being more lame in these feet.

Plank floors, as usually constructed, cause horses to stand uneasy, constantly straining some of the muscles of their legs, while sustaining themselves in an unnatural position.

To remedy these evils, on plank floors, make them almost entirely level, and allow horses bedding to stand on, to mollify the hardness; and frequently wet the fore feet. Many prepare a floor of earth, and there is no doubt that it is better. Many farmers have a room for a horse, where he can stand on the manure all winter, having it levelled occasionally, especially where he stands to eat, that it may not accumulate too high under his hind feet. There is less waste of manure than when thrown out, and it will not ferment so early in spring.

One of the best kind of stable floor, where the soil is dry, is made of lime, clay, and ashes, in equal parts. Mix into a mortar, and spread a foot deep. It will soon dry, and make a smooth, fine flooring, easy and agreeable for horses to stand on, and free from objections to stone, bricks, and wood. When the corks on the shoes are long and sharp, have the litter deeper, to preserve the floor.

DOCKING AND NICKING.

Nicking is an inhuman practice, that has gone almost entirely out of use. It not only inflicts severe punishment on the beast, during the tedious operation, but it weakens him forever afterwards; it is also liable to produce locked jaw.

Of late years, there are many reflecting, intelligent persons, who think the horse's tail was made for some useful purpose, and that he should have it to defend himself from myriads of flies and insects that swarm around him, in the warm season, to his great annoyance and vexation. Some think the horse will look better for being docked, and that this operation will cause his hind quarters to fill out fuller and stronger. Docking is performed by a single stroke of some sharp instrument. If it bleed too much, put the inner, soft part of sole leather on the wound, and tie the hair over it. The tail should be cut in a joint. This custom is declining.

EXERCISE.

Horses constantly stabled should be moderately exercised two hours a day, when the weather permits, in order to keep up their health and strength; for a horse will soon lose his strength as well as health, without exercise, if confined. Much depends on age, as a young horse requires more exercise than an old one. For neither should it be violent; and the horse should not be put up till he is cool; nor should he be allowed to cool at rest; but during very gentle exercise. Horses running in the pasture are better for moderate exercise frequently.

A horse's exercise should be in proportion to his strength, manner of feeding, labor required, &c.

Horses should not be rode fast after having been newly fed and watered. A fat horse requires a long course of moderate exercise before he can be safely put to a violent trot.

It should be a general rule to ride a horse moderately

at the beginning of a stage; afterwards increase the pace, and slacken it again a mile or two before stopping, so as to bring him tolerably cool into the stable [See remarks on Exercise, page 20.]

REARING AND TRAINING COLTS.

In his infancy, the colt will generally get along very well by his own exertions, with the affectionate care of his mother. But sometimes, colts, like calves and lambs, are weak or foolish, and need assistance; and, again, the mother may be ignorant or unfeeling, and some attention may be necessary.

The sooner the training commences, the better, after the colt is several weeks old, if it be done by a discreet person, so that he may receive the kindest treatment He may be fastened by a halter, where he cannot injure himself, or shut up in a safe room. The better way is to fasten him, generally; then, after having tried in vain to break away, he will learn to stand hitched, and by leading him, and handling him when fastened, he will the sooner be tamed and rendered familiar.

There are many disadvantages in colts following their dams, and they should frequently be left at home when their mothers are going far and will return the same day or evening, or are going a moderate distance and back quick, so that the exercise would be too much for the colt. If the mare travels far in hot weather, the colt will not only be injured by travelling, but he will be greatly injured by using heated milk. If he be left at home, the milk can be extracted on the way, to prevent injury to the mare; and. on returning, it should be nearly all drawn out, to prevent injury to the colt; then he will gradually fill his stomach, as the milk is secreted. This is by far the better way of the two; but the best way of all is to use the mare but little. Some would object to the colt's going without milk all day. What do they think of thousands of calves that do this, and grow and flourish well?

Sometimes colts will go off after another horse. Again, they will start to go abroad, and will not follow well;

and they often busy themselves in eating harnesses. These are all vexations.

Colts are weaned when four to seven months old. They should be put into a small enclosure, for convenience in seeing to them often, where there is pure water, a plenty of sweet herbage, and trees, or something that will be

"From storms a shelter, and from heat a shade."

Give them a little salt. If weaned after the green herbage is gone, feed on rowen, well saved, clover, and a few roots. A little meal and a few oats are good.

Take colts to the barn in the fall, when cold nights come on; and give them clover hay, roots, and some provender. They require special attention the first winter. A little exercise is of great advantage. Under a wise manager, they may be trained to a sleigh. When well disciplined, drive moderately; walk up hill, and down hill, too, if quite steep. Consider that a colt is a "wee bit of a thing," compared with a horse, in strength; and he should be put to no hardships. Gentle training will save breaking, and he will make a more intelligent and tractable horse. Put no weights on his back in his tender age.

Colts are seldom or never vicious by nature. If well educated, by first learning them what they are required to perform, and then encouraged and directed, by gentle means and the kindest treatment, there would seldom be any trouble, or need of compulsion or severity. [See Training and Breaking, page 27, and the following article.]

TAMING, TRAINING, AND BREAKING.

We have given some general rules on this subject. We here give modes of taming wild and vicious horses, and training horses, generally, to specific purposes.

TAMING VICIOUS HORSES.

Mr. Denton Offutt, of Kentucky, distinguished himself in taming horses, in all their varieties of vices and faults. He would make any horse follow him in the

street, in a few minutes. His mode was very gentle He slowly approached a horse, rubbed him gently on the nead in the direction of the hair, the faster the better; then rubbed and patted him all over, going to his head whenever he seemed alarmed. He would put on the bridle and halter; talk kindly to him, saying, "come along." Put on and took off the saddle, always calming his fears with kindness. In this way, he would tame and subdue by gentleness; the horse would become familiar, pleased, and tractable.

TAMING ANIMALS.

Mr. Catlin, in his work on the North American Indians, gave the following account of their method of taming the wild buffalo calves, and wild horses: —

"I have often, in concurrence with a well-known custom of the country, held my hand over the eyes of the calf, and breathed a few strong breaths into his nostrils; after which, I have rode several miles into our encampment, with the little prisoner busily following the heels of my horse, as close and affectionately as its instinct would attach it to the company of its dam. During the time that I resided at this point, in the spring of the year, on my way up the river, I assisted in bringing in, in the above manner, several of these little prisoners, which sometimes followed for five or six miles close to our horses' heels, and even into the fur company's fort, and into the stables where our horses are led.

In the same way the wild horses are tamed. When the Indian has got him well secured with the lasso, and a pair of hobbles on his feet, he gradually advances until he is able to place his hand on the animal's nose, over his eyes, and at length to breathe in its nostrils, when it soon becomes docile and conquered; so that he has little more to do than to remove the hobbles from his feet, and ride him into the camp."

The following is an account of an experiment by this mode. A horse-tamer saw a farmer and his tenants trying, ineffectually, to break a horse in the old way; and he proposed to try the effect of his new mode. The

filly was tied short up to a tree by the wall, and the tamer was warned to be cautious, as she would strike him with her fore feet. He approached cautiously over the wall, and by the tree. Immediately upon his touching the halter, the horse pranced about, and finally pulled away, with a dogged and stubborn expression, which seemed to bid defiance. Taking advantage of this, he leaned over as far as he could, clinging all the time to the tree with his right hand, and succeeded in breathing in one nostril, without, however, being able to blind the eyes. From that moment, all became easy. He was very skilful in the management of a horse, coaxed it, and rubbed its face, and breathed from time to time into the nostrils, while the horse offered no resistance. In about ten minutes, he declared his conviction that the horse was subdued; and he then unfastened it, and, to the great and evident astonishment of all, led it quietly away with a loose halter. Stopping in the middle of the field, with no one else near, he quietly walked up to the horse, placed his arm over one eye, and his hand over the other, and breathed in the nostrils. It was pleasing to observe how agreeable this operation appeared to the horse, who put up his nose to receive the puff. In this manner, he led the horse through all the fields to the stable yard, where he examined the fore feet of the horse, which offered no resistance, but while he was examining the hind feet, bent its neck round, and kept nosing his back. He next buckled on a surcingle, and then a saddle, and finally fitted the horse with a rope. During the whole of these operations, the horse did not offer the slightest resistance, nor did it flinch in the least degree.

BREAKING AND TAMING WILD HORSES.

The following mode was practised by Mr. Jonathan Smith, of Virginia. A vicious mare was given him to tame; which, it was said, he could not manage, unless he dealt with the devil, for she was a wild, skittish young thing, high-tempered, and disposed to kick and bite.

He ordered her into a stable, and then entered and fastened the door. Before she had time to survey him

he was giving her the lash smartly. Around she went, kicking and jumping. No rest was given; the sweat flowed, and she slackened in her movements. When she approached him, he slacked his whip, held out his hand, and said, "Come along." Again she was off, and the lash applied. This was repeated several times before she would advance, and when she moved towards him he approached and patted her, and as he moved away, and said, "Come along," she followed. In a moment she darted off; he applied the lash smartly. She stopped, trembled, and approached him; he patted her neck, and said, "Come along," and she followed him several times round the stable. When she lagged, he was away, and the whip applied. After that, she would not remain two feet from him.

He ordered the door opened, and the mare followed close to him to the crowd and back to the stable. This shows the general course, but not all the acts, in the *tragi-comedy*. It required about half an hour; and he said that it would not need repeating; that it was humane, as it prevented further contention.

TO TRAIN A SHY OR SKITTISH HORSE.

Never strike him for swerving, as this will increase his fears; but gently rub him in the face, and walk by the side of his head to the cause of alarm, and let him examine it; then go back, and let him slowly approach the object again; repeat, if necessary. We were once training a high-spirited and skittish colt, and he stopped with affright at a lock of hay in the road; we gently led him to the frightful object, and allowed him to eat it, to show him his folly.

Notwithstanding his spirit and shyness, we trained him to stop short or lie still at the word *wha!* (long a, that he might distinguish from the word *go!*) on any emergency, even if lying uncomfortably in a snow-bank; and we taught him to stop suddenly, whenever the harness broke or halter fell, even when travelling rapidly on a dark night. [See Blind Bridles.]

Lead a horse carefully over bridges, till his shyness abates; but if he continues shy, always lead him over

bridges that are not well railed, when you have any person in a carriage, as lives have been lost by horses springing suddenly from bridges, and plunging into the stream.

TRAINING TO VARIOUS PURPOSES.

To MAKE A HORSE FOLLOW YOU. You may make any horse follow you in ten minutes; go to the horse, rub his face, jaw, and chin; leading him about, saying to him, "come along;" a constant tone is necessary; by taking him away from persons and horses, repeat rubbing, leading, and stopping. Sometimes turn him round all ways, and keep his attention by saying, "Come along." With some horses, it is important to whisper to them, as it hides the secret, and *gentles* the horse; you may use any word you please, but be constant in your tone of voice. The same will cause all horses to follow.

HOW TO MANAGE A KICKING HORSE. First make a stall, or pen, for your horse, in which he cannot turn round, and with slats, through which you can put your hand to rub him in the face, and all over, two or three times, — raising his tail gently, three or four times; then touch one of his fore legs, and say to him "foot," "foot," until he shows a willingness to raise his foot; raise his foot up, and put it down, some three or four times; then go all round, until fear is removed. All you wish a horse to do ought to be done three or four times, repeated two or three days in succession.

TO TRAIN A HORSE TO THE SADDLE. You may begin by showing him the blanket, rubbing him with it, and throwing it on his back; in a short time, you may lay the saddle on, and, after fondling him a few minutes, you may fasten it, and ride him with safety. It is better for one person to stand by his head at first, and keep him quiet; and then to lead him along until all danger is over. If he is dangerous, you may exercise him for some time, by leading him, and leaving him, as he becomes more and more gentle in working. You can then manage him with more safety. It is better to *work a horse* to make him very gentle.

TO TRAIN A HORSE TO THE HARNESS. You must be

very gentle with him. You may commence by throwing a rope over the back, and letting it hang loose on both sides; then lead him about, caressing him, until he becomes satisfied that it will not hurt him; then put on the harness, and pull gently on the traces — in a short time, by this kind treatment, he will be prepared for work.

To make a Horse stand while you mount. Get on and dismount four or five times before you move him out of his tracks; and, by repeating this, any horse will stand still.

To cure a Biting Horse. Biting is a bad and dangerous habit. It is said that the bite of a horse that is not mad will sometimes produce madness. The following is regarded as an effectual, but barbarous remedy; but it is to cure a savage habit. A horse would better burn himself than bite people repeatedly. Roast or bake a piece of meat, and present it hot as he attempts to bite. Be cautious lest he bite a piece of *live* flesh instead of *hot* meat.

To accustom a Horse to the use of a Gun, Umbrella, &c. Commence by showing your friendship, by rubbing the horse's face with your hand; then snap and explode percussion caps with a pistol; let the horse frequently smell the powder and smoke; then you will fire small reports, until fear is removed; then overhead, and behind the horse, until all is free. If you have a very wild horse, place him in a stall, so as to have him safe; then fire a gun all around him, and go often up to him, speak to him, and rub him in the face, and then fire the gun again, until he is free from starting. To make a horse used to an umbrella, walk before him, raising it up and shutting it again; let him smell it, and rub it over his head; then get on him, gently raise it, and ride him along, until the fear is over.

To teach a Horse to lie down. First, with some soft handkerchief or cloth, tie up one fore leg; then, with a stick, tap him on the other, and say "kneel;" sometimes, by rubbing him on the head, and patting him on the leg, you will induce him to lie down. It appears that all horses are inclined to obey, when you teach them that you will not hurt them.

To prevent a Horse breaking a Halter or Bridle. First, strong halter him with one that will not draw, as that often makes his jaw sore; then fasten him to something which he cannot pull loose, and let him pull; indeed, make him pull until he is unwilling to pull any more. You then get on and ride him a mile or two, and tie him so again, and let him stand quiet. To prevent a horse breaking a bridle, put a thin, soft pad under that part that passes over the top of his head, with little sharp nails, so arranged that they will run through the pad and prick him when he pulls.

To prevent Stumbling. If a horse stumbles or trips, it is a common practice to strike him for it. This will not mend his habits, but will add to them, if he has spirit, that of springing forward with dangerous quickness whenever it occurs — as he will expect the lash to follow. The remedy is, to keep an eye upon the road, and where, from stones or unevenness, falling is apprehended, tighten the reins and enliven the horse, but never strike him after the accident.

To manage a Contrary Race-Horse. If he stops or sulks, go to him, and speak kindly to him; rub him down the face, using the bridle no more than you can help; turn him to the right or left, until he starts, as he will be most apt to start, at the second or third motion; then continue rubbing him in the face, talking to him as in other cases, keeping him quiet by leading him about. Continue to rub him in the face, and use the same tone of voice.

To manage a Sullen Horse. If a horse lies down, and will not get up, drive a stake in the ground and fasten him down for ten or twelve hours; then loosen him, work him for about an hour, water and feed him, and he will "know better next time." Or apply your hands to the nostrils and stop his breath, and he will soon start.

To stop a Headstrong Horse. Connected with the reins have a covering that, by a spring, may be suddenly thrown over his eyes, which will blind and stop him. Or have extra reins extending from the top of the headstall through rings on the hames, near the top, or D's

in the saddle. Put a narrow or round strap under the throat, and fasten to these reins, on each side bringing the reins down low. On drawing these reins, the strap will choke and stop the horse.

CARE OF A HEATED OR WET HORSE.

Walking. When a horse comes to the stable sweating copiously, he must not stand still, especially in cool weather, as he will be likely to take cold, inflamed lungs, or founder. But, by gentle motion, he will gradually cool, and these evils will be avoided.

If a horse be wet, he should be walked until dry; for, in this process, the evaporation carries off a great deal of heat from the body, and produces chill, colds, and diseases. But by moderate exercise, the heat is kept up till the drying is completed.

Wisping. If a horse be wet from water, or perspiration, and cannot be dried by moderate exercise, the water should first be scraped out of his coat, and the drying completed by wisping; and it should be done immediately, attending first to the belly and legs. To do this well, requires skill and a strong arm.

Clothing. If several horses need drying at the same time, and there is not sufficient help, put warm clothing on them; but if possible, scrape them first.

DRESSING VICIOUS HORSES.

Some horses seem naturally averse to the operations of the groom. But many are rendered vicious by the harshness, timidity, or folly of the keeper.

Biting may be prevented by tying he head to the rack, or ring outside the stall, or by putting on a muzzle. Some horses are so prone to biting, that it is dangerous to pass near their heads. Some biters are safe with the bridle on, and the bits in the mouth. Others behave very well when blindfolded. But some are so vicious that if prevented from biting by restraining the head, they will beat down their keepers with their fore feet.

Kicking is a worse habit. A groom of courage and authority, sometimes threatening, and now and then striking with a switch, will generally keep a kicking horse in subjection. The strap is a good remedy Take up a fore leg, and bend the knee till the foot almost touches the elbow; then apply a strap over the fore arm and pastern; then he cannot kick; or the exceptions are few. Change the legs each time. They should be held up at first. Keep out of the reach of a kicking horse, or so near him that an attempt to kick will be only a push.

UTILITY OF DRESSING AND FRICTION

It improves the appearance, and renders the hair glossy and smooth. When the coat of a horse is in good condition, it is a little oily, which causes it to shed the water. The anointing matter is secreted by the skin, and this secretion is much influenced by the grooming. A want, or redundancy, of perspiration injures the coat. Hence a horse that is often and severely heated, needs much dressing to keep him in tolerable plight.

Grooming has an important effect on health, as well as in the appearance. A healthy state of the skin is very conducive to a healthy condition of the bowels and lungs, as there is an intimate connection between them. If, from a sudden cold, the pores of the skin become closed, insensible perspiration is impeded in its usual course, and the system becomes diseased. Hence the importance of washing, bathing, and rubbing the body of the human subject, and of currying, brushing, rubbing, and occasionally washing animals; not only horses, but all others.

SHOEING.

A smith who shod for the hunt, and who said that he should have to shut up shop if a shoe was lost, as it might cause the loss of a horse worth a thousand pounds, fastened the shoe as follows: — As he drove the nails, he

merely bent the points down to the hoof, without twisting them off, as the usual practice is. He then drove the nails home, and clenched them. He then twisted off the nails, and filed them lightly, to smooth them; thus having, as he remarked, a clench and rivet to hold the nail. [See Diseases of the Feet.]

TO SAVE HORSES FROM FIRE.

Horses are frequently burnt to death, when barns or stables are on fire, owing to the impossibility of leading or driving them out of the building, while their eyes are dazzled by the light. But we are assured that by simply covering their eyes with a bag, blanket, coat, or pocket handkerchief, they may be led out of danger without trouble or difficulty. It is said that by throwing a saddle, or anything else, on the back of a horse, in such cases, he may be led out.

FOOD, AND ITS PREPARATION.

GREEN HERBAGE.

Green herbage, in great variety, is the natural food of the horse. This is the most wholesome: for on this he is less liable to disease than when under an artificial course of feeding. This food is rather laxative, so that it keeps the bowels in good condition; it contains sufficient nutriment, and is not liable to produce plethora nor does it have the heating and constipating effects of grain and other concentrated food.

Grasses are the principal food of horses; yet they eat of almost every kind of herbage. In this way, they are supplied with a great variety of food, affording all the necessary elements of nutrition. The principal grasses cultivated in this country, are herds-grass, red-top, and red and white clover; all of which are excellent. There are other grasses cultivated to less extent, and many kinds grow spontaneously. A few grasses salivate the horse. [See Salivation.]

Indian Corn. Green cornstalks are a good food for

horses and other stock. Some have worked on it for months, without grain. In such cases, it is the better for having age and substance. [See Food for Cattle.]

Small Grains and other Plants. The small grains, while the straw is green, or while they are growing, and fed off like grass, are excellent food for horses. Millet, in the green state, is good horse feed. Besides the things we have named, there are hundreds of plants, far too numerous to mention, indigenous and exotic, cultivated and spontaneous, that are nutritious and palatable food for horses, cattle and sheep.

DRY HERBAGE.

Hay is the principal dry fodder used in this country for horses and other stock; and although a few varieties, such as herds-grass, red-top and clover, are the principal kinds used, yet owing to soil, their growth, the time of cutting, the weather for saving, the manner of curing, and the condition in which they are saved, there is a vast difference in the quality of hay. While some kinds are worth $20 per ton, others are not worth $5, and some lots are fit only for manure.

Herds-grass, (Timothy,) with a little red-top and clover, makes a very substantial fodder for animals that are at hard labor; but for milch, growing, or idle animals, clover, well cured, is a superior article. To make it without wasting the leaves, put it into tumbles when partially dry. This will cause the moisture to spread from the stalk to the dry portions; then open and dry again. If not well made when got in, put it with straw, old hay, or coarse vines or herbage, in alternate layers. These will save it, and become sweet by contact.

Quality of Hay. Hay is of various qualities, as we have named. Some is cut too early, and is flashy and too physical for laboring animals. Some stands too long in the field, and becomes lifeless. It sometimes lodges, and is poor when cut. In bad weather, or by neglect, it is exposed to rains or dews, and much injured. The hot sun, after it is pretty well made, destroys its sweetness and fine fragrance. Hay is often put into the barn in too green or damp state, and mow-burns, and becomes

musty and poor. Some save hay by much salt; but if more salt is put on than animals would eat while consuming the hay, which is about four or five quarts to the ton, it will be injurious. This would give a horse that eats four tons a year, about forty or fifty pounds of salt, which is much more than the usual allowance of an ounce a day, or eight ounces a week. Avoid all kinds of bad hay, if you would keep your animals in good condition.

Straw, of various kinds, is used as food for stock. It contains some nutriment, and when animals are fed highly on grain, straw is better than hay, as it gives bulk to fill the stomach, with less nutriment. The value of straw depends much on the time it is harvested, and the manner of saving It is much better for being cut in a machine.

Corn fodder is valuable, being very nutritious and palatable, when cut in season and well cured. A good crop will afford six tons of dry fodder to the acre.

Other Plants. As we have said of green herbage, there are hundreds of plants that afford good dry fodder, when cut in their tender state and well saved. Some, that animals will not eat in their green state, are quickly devoured when dry. Horses and other animals will eat poisonous plants, and lobelia, in a dry state, which they avoid when green. [See Poisons.]

GRAIN.

Oats are used more extensively for horses than any grain. They are an excellent food, giving strength and spirit; and, owing to the hull, they afford the stimulus of distention, as well as nutriment. They are less liable to injure horses than corn, wheat or rye, which are more solid, or concentrated food. There is a vast difference in the value of oats, — some having full meat, others being mostly hulls. Some weigh twice as much as others, and this should be considered in purchasing and feeding.

Bad oats are often given to horses, which have an unfavorable effect, producing the diabetes and other diseases. Sometimes oats are injured by storms, or in

curing. New oats, not well saved, are hard to digest, and rather purgative. If too old, they become musty, and full of insects. Some contain dirt, dust, earth, &c.

Preparation and Feeding. Horses prefer oats whole and raw. Grinding is not generally considered profitable. Bruising is good, but it is much labor. Soaking is good; even wetting is beneficial in hot weather When horses are travelling, they waste oats from a trough, and they lose many from provender baskets by tossing up the head. Nose-bags are best, with a good fit, to prevent waste, yet allowing room for the jaws to operate.

Indian Corn is used to a great extent in this country for horses; it being the cheapest grain raised, considering the nutriment it contains. But, owing to its heating properties, and the large amount of nutriment in a small space, it should not be given alone, excepting in moderate quantities. Hence the advantage of grinding the cob with the corn, to add to the bulk. The cob contains some nutriment, also. Meal, or cracked corn, is better than whole corn. If a horse be fed on whole corn, fowls will live well on the manure, or particles of undigested grain that are voided. Some soak corn a day or two before feeding, which is doubtless an advantage.

Barley. Some regard barley as valuable as oats, pound for pound. Others say it is heating and laxative. Its laxative effects soon cease. It is better for boiling or soaking; or grind and scatter it on cut, moistened fodder. Feed lightly at first.

Wheat is hard to masticate and digest; therefore it is not good food without preparation. Horses are very fond of it, and will eat it to excess. It is said to be poisonous in large quantities. It has proved fatal in several cases. Wheat bran, pollard, and shorts, are valuable for mashes.

Buckwheat is but little used for horse feed. In some parts of Europe it is used, being first made into bread. Some say this grain is too laxative; others, that it has stupefying effects.

Rye is but little used as food for stock. We have observed that it is laxative; and this might be inferred from its peculiar qualities. A good preparation would be to grind it and strew the meal on fodder

ROOTS.

Potatoes, both raw and cooked, are a good food for horses. They are rather laxative, especially raw. In large quantities, raw, they are apt to produce colic in horses not accustomed to them. They are in some measure a substitute for grain, in horses accustomed to slow work, and they are better than grain to keep idle horses in an healthy state; but for horses accustomed to speed and violent exertion, this food is not sufficiently solid. A very few may be given at night, or a moderate mess on Saturday night, when the horse is allowed to rest on Sunday. They prevent costiveness.

Turnips are much used in England as food of farm and cart-horses. Ruta-bagas are best. The white are poor. For slow workers, turnips, to a moderate extent, supersede grain; but for fast workers, they are a substitute for hay. They are better cooked. Turnips produce a good skin, and a smooth, shining coat. It is best to give them at night.

Carrots are probably the best roots for horses. When first given they are slightly laxative and diuretic, but in a short time these effects abate. They improve the condition of the skin. They are a good alterative for horses out of condition. To sick and idle horses they render grain unnecessary. They are good in diseases of the skin; and they are very useful in chronic cough and broken wind. They are excellent in restoring a worn-down horse. Carrots are fed raw. They should be washed and sliced. For slow working horses they answer instead of grain. One bushel of oats and one of carrots are considered equal to two bushels of oats. Horses like carrot-tops, and they are considered wholesome.

Parsnips are much used in France as horse feed. In some places they are used for fattening all kinds of stock. It is said that they injure the eyes of horses, but this is not well established, as in some parts they are used extensively, without this effect. Parsnips are used raw and boiled. Their leaves, in good condition, are eaten as readily as clover.

Beets, Artichokes, Vegetable Oysters, and other roots, have been but little used for horses.

Washing Roots. A little dirt may do no injury, especially in winter. Some think it is beneficial. Sheep are doubtless benefited by a little. The dirt has a laxative effect; and the roots, and salt used on them, have the same effect. This may be sufficient without dirt. The dirt may wear the teeth too fast, and sometimes horses loathe it. It is but a little trouble to wash them in a machine, or by putting them into a basket, and shaking them in a tub of water.

VARIOUS OTHER FOOD.

Beans are seldom used in this country. In England, they are much used. Old beans are preferred, as new are more flatulent and harder to digest, producing colic and founder. Sometimes they are mouldy, and insects may eat out the flour and vital part. Beans are very nutritious, heating and constipating. Therefore, use them sparingly. Grind them, and strew the meal on fodder. The meal is good for diabetes.

Peas are much the same as beans, only rather harder to digest. The meal is still better for diabetes.

Flax-seed, in small quantities, either whole or ground, raw or boiled, is sometimes given to sick horses. It is too nutritious for a fever, or any condition that requires light food. But it is excellent for a cough; it makes the skin loose, and the coat smooth and shining. Half a pint may be mixed with the food every night. For a cough, it should be boiled, and given in a bran mash, and the compound will be improved in its medical qualities by adding a little coarse sugar, honey, or molasses.

Oil Cake, ground, which is called oil meal, is very good in boiled food, which is not very rich; or it may be prepared by turning on water, and let it stand awhile. In this state, it may be sprinkled on to cut feed, or any fodder. Two pounds a day is the usual allowance; it makes the hair glossy, and the skin soft and pliant.

Hemp-seed is supposed to be invigorating and good for the wind. It is given to stallions in the travelling season. The allowance is four or five ounces every night.

Eggs and New Milk are given to stallions in the season they are much used, but the former is a very expen

sive food. In Arabia these articles are considerably used for horses. Milk is the natural food of the colt, for the first four or six months.

Bread is considerably used on the continent of Europe, as horse feed. It is made from various kinds of grain, and fermented. It is nutritious and wholesome, and, in some sections, economical.

Fruits, of various kinds, are used, such as apples, pumpkins, sweet potatoes, chestnuts, dates, &c. Some think pumpkin-seeds should be removed; lest, from their diuretic quality, they produce diabetes.

Flesh and Fish are fed to horses in Iceland, and some parts of Norway.

PREPARATION OF FOOD.

Something has already been said on this subject, in regard to several kinds of food which we have named [See, also, page 31.]

Cutting Fodder. There are several advantages in cutting fodder. Different kinds may be mixed together, and all consumed without waste, the unpalatable with the good. When a horse is heated, hungry, and thirsty, he may eat moistened food, and thus quench his thirst, satisfy his hunger, and cool gradually; when, without this preparation of food, he would be too hot to drink, and too thirsty to eat dry fodder.

By this preparation, a horse has time to eat his food, and lie down, and rest, instead of standing all night, and chewing hard, long, dry fodder. This is important, when a horse has been on his legs all day.

Cut and moistened fodder prevents the heaves, and it cures this disorder, or so far relieves it, that animals which have been thus affected, are enabled to do good service, and appear to be cured. The superintendent of a stable of forty horses, informed us, that during many years' experience, and his horses in very hard service, he never had one affected with the heaves; and several that he procured, when they had this disorder, in some cases severely, were cured in the course of a few months, and not troubled in this way again while under his care. He attributed these favorable results to the constant use

of moist food. Fodder should not be cut very short, as some animals swallow it without chewing it well. In such cases, the sharp ends of fodder have cut the intestines so as to produce blood in the dung. From one and a half to two and a half inches is short enough. Some cut it two or three inches long.

SOAKING FODDER. Some soak fodder from morning till night, and the reverse, and prefer this to cutting. It greatly promotes mastication and digestion. In this case, it would be well to have stock in a cellar during winter.

GENERAL REMARKS ON FOOD AND FEEDING.

When great labor is required, feed a horse on dry fodder, cut and moistened, and grain ground or cracked. This is the best practice in this country and Europe. When horses are heated, and pressed hard, without time to rest, give them meal in soft, but not cold water. If the horse has time to eat, give him moistened fodder. Grain gives the horse strength, affording much nutriment to support the wear of muscle under great exertion. But for his health, he should occasionally have roots; or feed these in very small quantities, if violent exertion is required; and to slow working and idle horses, feed them constantly. They keep the animal in better health than grain; they open the bowels, cool the blood, determine the secretions to the surface, render the skin loose, and the hair smooth and glossy; and besides the advantage of keeping the horse in good condition, roots are a cheaper food than grain.

The food of a horse has great effect on diseases. Wounds heal more kindly; inflammatory diseases are not so fatal, or are more easily cured; and chronic disorders frequently abate, or entirely disappear, under the use of grass or other green herbage. But on such food, his flesh is soft, he sweats more, and is sooner exhausted. Such food is not suitable for horses at hard labor; but it will answer for slow, moderate work.

When horses are first taken from grass, they should be gradually accustomed to a dry diet, by giving them laxative food, such as roots, mashes, clover hay, &c., with their other fodder, which should be gradually

increased, and oats or other grain should be fed lightly, at first. They should be put into a cool stable, and have a plenty of walking exercise, or light labor. These precautions will save medicine and horses.

As horses for labor are to be kept only in *condition*, not fattened for slaughter, they should always have moderate exercise, and food should not be kept constantly before them; but there should be intervals of three or four hours between each meal, that they may rest, and regain their appetites; and that one meal may be well digested, before another is taken into the stomach, to over-tax the digestive organs with a double task at once. Some animals have no discretion, and some keepers of stock exercise no more judgment, but keep horses always eating, causing a burthen of fat and disease, in horses not exercised.

WATER.

Pond, river, or brook water, if it be pure and sweet, agrees well with horses. Hard water is said to be improved by throwing in chalk or clay, and exposing it in cisterns to the open air. Sometimes hard water at first relaxes the bowels, and affects the skin, causing the coat to staer. When water is taken from cold fountains, in hot weather, it should stand an hour or two before used; or add warm water or meal. Cold water is refreshing to a thirsty, heated horse; and, if allowed, he would drink to his own destruction. After he has stopped two or three minutes, to recover his wind, he may drink a little cold water, and travel on immediately, to keep up the temperature of the system. In winter, guard against extremely cold water, by ice or snow in it, or by exposure to the freezing atmosphere.

CARE OF HORSES IN TRAVELLING.

Take particular care of your horse at every stopping-place, and see *yourself* that he is properly treated. Sometimes the hay at taverns is poor; in that case, your horse must have more grain. If you feed freely

on grain, he should be accustomed to it, else the sudden change may prove injurious. Oats are not so solid food as Indian corn, of course less liable to injure the horse.

If grain be given mostly at night, it will become well digested, and nourish and strengthen the horse; but if fed freely just before starting, the horse will travel with difficulty; the digestion will not be complete, and the food will pass off without affording proper nourishment. Hard driving after eating is more injurious than eating after hard driving.

Many persons, on starting from home, or on the road, will stuff their horses with fodder, and then with grain, which they will eat, though full enough before; like the thoughtless child, who will eat a piece of pie, though already pretty full. Hard driving, under such circumstances, is ruinous; the horse should go moderately till the contents of the stomach are reduced.

When travelling, allow the horse to drink often, and but little at a time, especially if he be heated, and the water cold; then he will not wish to drink to excess; and when he stops, let him cool before drinking. Meanwhile, he may eat moist food. If a horse grows costive, give him some mashes of scalded bran, or a mess of potatoes or carrots, at night.

After travelling, a horse's feet should be picked, and all dirt and gravel washed out. In hot weather, washing his legs is proper, but they should always be well rubbed and dried, afterwards. In cold weather, cold water is injurious to the heels, and apt to bring on swelling, and the grease. Washing a horse's legs and feet in brine prevents stiffness in the joints, and it makes the hoofs tough. [For further directions on this subject, see Food, Water, Feeding on the Road, General Management, &c.]

FEEDING ON THE ROAD.

Many persons, in travelling, feed their horses too much and too often — continually stuffing them, not allowing them time to rest and digest their food; of course they suffer from over-fulness, and carrying

unnecessary weight. Some make it a rule to bait every ten miles, which is very inconsistent, as in some cases, with a fleet animal, good road, favorable weather and load, this distance may be travelled in one third the time that it can under unfavorable circumstances as to speed. It would be better to regulate the feeding by time rather than distance.

Mr. S. B. Buckley, who made a botanical tour among the Cumberland Mountains, says, in the Albany Cultivator, "Four young men came in, travellers on horseback, who, according to the southern custom, ride all day, without stopping to dine or feed their horses. Horses will do well and keep in good condition under such treatment, as I can testify from experience."

Horses should be well fed in the evening, and not stuffed too full in the morning, and the travelling should be moderate on starting, with a horse having a full stomach. If a horse starts in good condition, and travels rather quick, he can go twenty or twenty-five miles without baiting; this is evident, when we consider the time necessary to accomplish this space with tolerable speed; as it will require only three or four hours. On the contrary, with a heavy load and bad road, a horse would only go eight or ten miles in that time. Why cannot horses travel half a day, or four hours, without eating, as well as to work that time on a farm? If there be more exertion on the road, it is a reason against frequent feeding at that time.

GENERAL MANAGEMENT.

We make a few remarks on subjects not considered elsewhere. The whip or spur should never be used, for any fault but dulness and obstinacy; and the latter can be cured better by gentleness. With kind treatment, the horse is generally gentle and tractable.

Washing horses, or allowing them to swim immediately after hard work, or when heated, produces colds fevers, colics, and fatal chronic complaints. Even the partial application of cold water to the legs, head, or back, when the horse is heated, should be avoided.

When horses are at hard service, in hot weather, before feeding, cleanse their nostrils, inside and out, with a sponge or rag, wet in water and vinegar, or water alone, if vinegar be not at hand.

Sometimes a horse will not lie down, when tied up in a stable, and he may suffer in his feet, joints, and in his whole system, by standing constantly. As a remedy, put him untied into a stall or pen, with a good bed to tempt him to rest his weary limbs.

If you would improve the condition of a horse, and prepare him for hard service, you must *work the flesh on to him*, as the saying is; that is, give him moderate exercise or labor, while he is gaining flesh; this will prevent the accumulation of fat, and increase the muscular part of the system; it will give good health, and solidity and firmness to the flesh, and greatly increase his strength and power of endurance.

In different stables, the quantity of salt varies from one to two ounces daily, for each horse. In others, none is given excepting on Saturday night, when eight ounces are given to each. This prevents any evil from liberal feeding while at rest on Sunday. Better give a small portion in food, and allow the horse to help himself to more when he pleases.

For loss of appetite, give mashes, a few roots, and once or twice a week, three or four drachms of saltpetre, and give gentle exercise. A little Cayenne pepper, or *hot drops* may be good. [See page 49.] We have revived a horse's appetite by feeding on sheep's orts.

Sometimes a cold bit freezes to the tongue, and takes the skin off. For ulcers in the mouth, apply a tincture of myrrh, or a solution of alum. For bridle-sores at the corners of the mouth, touch them daily with salt water; and cover the bit in soft leather, unless the horse is at rest.

STOMACH AND INTESTINES.

Stomach. There is a strange difference between the four stomachs of the ox, and one of them so large, and the one small stomach of the horse — very small in pro-

portion to his size. He seems admirably calculated for exertion, speed, and strength, on every emergency, full or fasting; yet by hard driving, after over-fulness, he is very liable to injury. If the horse had a large stomach, it would render him clumsy and heavy, when full, and it would press heavily on the lungs, and impede inspiration. A part of the horse's stomach, like the paunch of cattle, is insensible, and serves as a reservoir for food, which he is often compelled to eat fast, and without sufficient chewing, where it is macerated and prepared for digestion, which process is partially performed in the other parts, and then the food passes on to the

Intestines, in the first portion of which digestion is continued, as it is larger than in other animals, and is well adapted to digestion, by a thick, villous coat, with numerous folds, like a second stomach. This process is continued in the small intestines, and is not perfected until the food has passed the larger intestines; the first of which, the *colon*, is very large in horses, compared with that in cattle; here the food is retained awhile among the deep cells, and further digested. It then enters the *cæcum*, which is large, and adapted to digestion by its complicated cells. After its retention, and further digestion here, it passes into the *rectum*, or last intestine, and is discharged, a part still remaining undigested after passing through this long and complicated apparatus.

PHYSIC.

Sometimes it is necessary to physic horses, under treatment for diseases, and in cases of a change of food to that which is more astringent. When a horse comes from grass to hard food, or from the cool, open air to a heated stable, a dose or two of physic may be necessary to prevent the tendency to inflammation consequent on sudden changes. A dose of physic is often useful to a horse that is becoming too fat, or has surfeit, grease, mange, old cough, worms, or that is out of condition from inactivity of the digestive organs. But the periodical physicking of horses, in the spring and fall, as

practised by some to an injurious extent, should be avoided.

It is best to prepare a horse for physic by giving bran mashes, until the dung becomes softened; then a less quantity of physic will suffice, and it will more readily pass through the intestines, and be more equally diffused over them. Five drachms of aloes will generally be sufficient when a horse has been prepared for the physic; it is equal to seven drachms when the intestines are obstructed by hardened fæces.

On the day of giving the physic, the horse should have walking exercise, or may be trotted gently for a quarter of an hour, twice in the day; but after the physic begins to work, he should not be moved from his stall. Exercise then would produce gripes, irritation, and possibly dangerous inflammation. It is an absurd and too common a practice, to give the horse the most exercise after the physic has begun to operate. As much mash may be given as the horse will eat, and as much water, with the coldness taken off, as he will drink. If he refuses warm water, it is better for him to take cold water than to continue without taking any fluid; but he should take not more than a quart at a time, with intervals of an hour.

When the purging has ceased, a mash should be given once or twice a day, if another dose is to be given, which should be a week from the first. It is best to give moderate doses, as in some cases a less dose is required than in others, and then repeat in half or partial doses, at intervals of three, four, six or eight hours, according to circumstances. Be cautious and not carry this too far, nor give too large doses, lest the horse become swelled up and distressed more by the medicine than by the disease.

Very powerful doses of physic cause lowness and weakness to hang about a horse for many days, or some weeks; and inflammation will often ensue from over-irritation of the intestinal canal. Aloes is a very sure and safe purgative for a horse, and is used more extensively than any other physic, and in preference to any other. The Barbadoes should be preferred. The dose for a horse is from five to seven drachms. It is ustom

ary to give it in the form of a ball; but a solution of aloes acts more speedily, safely, and effectually.

Linseed oil is a safe but uncertain purgative; doses from a pound to a pound and a half. Olive-oil is more uncertain, but safe. Castor-oil, a mild aperient in the human being, is both uncertain and unsafe. Epsom salts are not efficacious, excepting in large doses of a pound and a half, and then not always safe. Rhubarb and jalap have no effect as a purgative on the horse. A strong decoction of thoroughwort is an excellent cathartic for a horse. He may take it in Indian meal, or pour it down his throat. [See Physic, page 33.]

DIURETICS.

The principal diuretics for the horse are, rosin, saltpetre, turpentine, and potash; the milder ones are, digitalis, squills, tobacco, cream of tartar, juniper, &c. Digitalis is peculiarly adapted to high inflammatory affections, to be used either with or without saltpetre.

Rosin is the most active of any in use, and, in a dose of three to six or eight drachms, is very sure in its operation. Saltpetre, in like doses, is sure, but not quite so active; it is much preferred in inflammatory diseases in urinary obstructions from the gravel. Turpentine or potash is certain; give of either from half an ounce to an ounce, in two or three quarts of water, fasting. A dose of cream of tartar is four to six ounces.

In giving diuretics, observe the same precautions as with purgatives. Keep warm, but not hot; avoid overexertion; but, above all, allow a large quantity of tepid water, which increases the effect, and renders the action less hurtful. [See this subject, page 34.]

BLEEDING.

The best vein for bleeding horses is that in the neck, particularly in all affections of the head, and in fever. Tie the horse's head up for several hours after. In affections of the shoulder, or of the fore leg or foot, bleed from the plate vein, which comes from the inside of the

arm. In affections of the foot, it may be taken from the coronet, or more safely from the toe, by cutting down with a fine drawing-knife, between the crust and the sole, at the very toe, till the blood flows, and making it bleed more by dipping the foot into warm water. The bleeding may be stopped with the greatest ease, by placing a bit of tow in the little groove that has been cut, and tacking the shoe over it. [See page 37.]

FEVER.

To judge of the state of the fever, you may examine the pulse, which you will find by pressing the fingers gently on the temporal artery, about an inch and a quarter back from the upper corner of the eye; or at the lower jaw, by pressing the artery against the bone; or on the inside of the fore leg, just above the knee. In health, the pulsations are from thirty-six to forty a minute. When they reach fifty or sixty, fever is indicated; seventy, seventy-five, or eighty, indicates a high fever. They are sometimes one hundred. Or put your hands to the nostrils and judge by the heat of the breath.

Avoid all stimulating food or medicine. Bleeding may be necessary in the beginning of the fever, to reduce the force of circulation, and gentle purging to remove irritating substances from the bowels. In an advanced state of the disease, when the heat is great, and the dung hard, clysters may be necessary. Feed sparingly, and with light, moist and easily digested food, that the digestion may not be oppressed; and give cool drinks, to allay thirst, such as clover tea, lukewarm, with a quarter of an ounce of saltpetre in it, morning and evening, till the fever abates. Allow him rest and quiet, and prevent all undue excitement. For a while, sprinkle warm water on his fodder.

Those who are opposed to bleeding, (and gentle means are preferable,) may reduce the system by gentle physic, light and spare diet; and diuretics will be an auxiliary, and often serve as a substitute for bleeding; but like physic and other unusual operations, they should be used very sparingly. The saltpetre recommended is sufficient

Bleeding is not necessary, as there is no increase of blood in a fever. By mild means the animal may be soon restored to health and strength, but if bled, he recovers slowly. At first, equalize the circulation, by rubbing the extremities, giving light, laxative food, as bran mashes, etc., and soothing teas, such as raspberry, clover, sage, mint, etc. In severe cases, in addition, throw warm rugs over the animal, hanging down to the floor, and place under his body and head vessels of hot water, which renew, or put in hot stones, and sweat him. Apply cloths from hot water, and friction, to the legs, ears, etc. This will relax the rigid veins, and promote a general circulation and equilibrium of the blood.

SCOURS.

Causes are various. Sometimes it is an effort of nature to throw off morbid matter, preventing disease; therefore do not check it suddenly, but give dry food and it may abate.

Remedy. If violent, give raspberry, camomile, clover, sage, or other soothing teas, and if these do not begin to check it, in one day, give light doses of lime water, or baberry tea, or other astringent. Scald the meal given as food, and give clover tea for drink. Light doses of hot drops, or Cayenne pepper, or composition are good to relieve pain, and give a healthy tone to the stomach. The teas are good to check inflammation of the bowels. Strong coffee, with a little flour and some eggs beaten up in it is a good remedy. If the disease continues, or is becoming chronic dysentery, give once in a day or two, to a large animal, three or four tare spoonfuls of finely pulverized charcoal.

HOVE.

Not common in the horse, give a pint of strong saltwater, or quarter of an ounce of chloride of lime in a quart of water, or a pint of gin or other spirits.

DISTINCTION BETWEEN COLIC AND INFLAMMATION.

The following table will enable one to distinguish between *colic* or *gripes*, and *inflammation of the bowels*: —

Spasmodic, or Wind Colic.	*Inflammation of the Bowels.*
1. Pulse natural, though sometimes a little lower. In health, the pulsations are thirty-six to forty per minute; being rather slower in large, heavy, and in old horses, than in young ones. Exercise, animation, or fright, increases the pulse.	1. Pulse very quick and small. Fever often increases the pulsations to double the healthy number. In violent fever, attended with inflammation of the bowels, the strokes sometimes rise to one hundred a minute, or more.
2. The horse lies down, and rolls upon his back.	2. He lies down, and suddenly rises up again, *seldom* rolling upon his back.
3. The legs and ears generally warm.	3. The legs and ears generally cold.
4. Attacks are very sudden, and are never preceded, and seldom accompanied by any symptoms of fever.	4. Attacks are generally gradual, and are commonly preceded, and always accompanied, by symptoms of fever.
5. There are frequently short intermissions.	5. No intermissions can be observed.

COLIC.

Causes are numerous. The principal are an overloaded stomach, particularly when water is given immediately before or immediately after a large allowance of food; violent exertion on a full stomach; a sudden change of diet, particularly from hay to grass, and the reverse; the change to grass is still worse if the feed be very luxuriant, and the evil of a change from grass to hay, (which produces constipation,) is aggravated by

feeding provender freely, particularly Indian corn, if the animal has not been accustomed to it. We have known severe cases of colic by a change from grass to hay and corn.

Sometimes a change from oats to barley will produce colic; and so will a large allowance of any food to which the horse has not been accustomed, as raw potatoes, carrots, turnips, or other green food, which produces fermentation. If a horse swallows his food hastily, without mastication, he is liable to colic. Feeding too often, that is, filling the stomach with one meal before the previous one is digested, and the contrary extreme of long fasting, and then full and rapid feeding, is apt to produce colic. Cold water, in excess, is sometimes a cause.

Symptoms. The horse is taken suddenly ill, and slackens his pace, and sometimes attempts to lie down. Again, he falls down suddenly, and rolls, and perhaps starts up suddenly. If in the stable, he paws with his fore feet; and, if the pain be severe, he is in constant motion, and strikes his belly with his hind ones. He lies down and rolls; in moments of comparative ease, he looks wistfully at his flanks. When standing, he makes fruitless attempts to urinate, and the keeper thinks there is "something wrong with his water." In a little while, the belly swells, perhaps mostly in the right flank. In severe cases, the swelling is usually general. As the disease increases, the pain becomes intense; he dashes about with terrible violence; the perspiration runs in streams, and his contortions are frightful. [See other symptoms, in the last article.]

Remedy. The fermentation should be stopped, and the digestive powers reëstablished. A good old-fashioned medicine is whiskey and pepper, or gin and pepper. About a gill and a half of spirits to a tea-spoonful of pepper, given in a quart of milk, or warm water. If the pain does not abate in thirty minutes, repeat the dose; and again in an hour, if necessary. Rub the horse's belly with a soft wisp, and walk him about gently. Give the medicine as early as possible.

A Better Remedy should be prepared thus:—Take a quart of good brandy; add four ounces sweet spirits

of nitre, three ounces whole ginger, and three ounces of cloves. In eight days it will be ready for use. The dose is not named. This quantity would be enough for five or six strong doses, or eight or ten moderate doses.

ANOTHER. An ounce of laudanum, given in a little water, has invariably succeeded with some who have tried it many times. Laudanum is a powerful anti-irritant, and a diffusive stimulant. There is no danger in giving this medicine at the commencement of the disease; but if a fever and inflammation have set in, it would be improper. This condition of the system would require bleeding, purging, and clystering, and frequently the application of cold water to the surface, immediately followed by rubbing, wisping dry, and warm covering.

ANOTHER. As soon as the animal is attacked, make a strong soot tea, and add half a pint of whiskey, new rum, or other spirit, and pour it down.

ANOTHER. Take a handful of the white part of hen-dung, and simmer it a few minutes in a quart of human urine; strain, and drench the horse with it, and if not effectual, repeat the dose in half an hour.

ANOTHER. Give a quart of common salt and water, as strong as it can be made.

ANOTHER. Give half a pint or a pint of linseed oil.

ANOTHER. Half a pint of hot drops is excellent.

ANOTHER. Put a pint of hot wood-ashes and embers into two quarts of cold water, and stir. Cut off an inch and a half of hand tobacco, and shred it into the mixture. Stir all up; let it set fifteen minutes and settle; then pour off a common junk bottle full, and drench your horse. It is called a speedy cure. A writer in the Southern Planter says that he has seen this given in one hundred cases, without a single failure, and that it would not injure a well horse.

REMARKS. Sometimes there is an introsusception, or falling of one part of the bowels into another; or a doubling of the intestines, so as to completely stop the passage. In such cases, it may be impossible to afford any relief; and doses of physic and other medicine which produce fermentation, may only aggravate the difficulties Back-rake, and give a powerful exciting injection, which

may open the bowels; and give alkaline medicines, such as chloride of lime or ammonia, to absorb the gases and reduce the swelling.

In all severe cases of colic, back-rake, and give exciting injections. [See page 46.] These aid physic, and all other remedies, and frequently give immediate relief, alone. They are sure, and they generally obviate the danger that often attends giving powerful doses of physic, when the bowels are constipated.

INFLAMMATION OF THE STOMACH AND INTESTINES.

When either the stomach or intestines are inflamed, the other part is generally soon affected from continuity.

Causes. Much the same as those that produce fever; such as sudden check by cold, to the external parts, while the bowels are under excitement, from over-action, hard labor, fatigue, excessive heat, the operation of cordials, &c. Also, long rests in currents of air; driving into cold water when covered with perspiration; and neglect of the necessary evacuations. It is often brought on by costiveness.

Symptoms. [See them contrasted with those of colic, page 108.]

Remedy. Bleeding is often practised, but it is not absolutely necessary. Give gentle physic, with soothing herb tea. If there be severe costiveness, back-rake, and give injections, such as recommended on page 46, for inflamed bowels. Exciting medicines and injections should be carefully avoided, as they aggravate the disease.

After an operation on the bowels, give sedative and astringent teas. Raspberry tea combines both of these qualities, and has been used for horses with excellent success. Give light and laxative food. Give green herbage, if in the season; if not, give a little clover hay, and pure straw, mashes, potatoes, &c. Curry well, and rub thoroughly, to promote a general circulation, and invite the blood outwardly.

BOTS.

The horse-fly, or bot-fly, (*Oestrus equi,*) appears in July, and continues till cool nights in the fall; she lays her egg on those parts of the horse liable to be licked by his tongue, on which he takes the eggs, and they soon find their way to the stomach, where they are hatched; or they hatch on the horse, and may be passed into the stomach.

The young bots adhere to the stomach by little hooks, and are nourished by the mucus of the stomach, or the food it contains, until the next spring, or first of the summer, when, having attained full size in the larvæ state, they drop their hold, and are carried along with the contents of the stomach, and voided. They then burrow in the ground, and remain a few weeks in the chrysalis state, when they undergo a more important transformation, and become flies, or perfect insects, pursuing the course of their predecessors.

This is the course that nature has provided for their propagation; and some persons contend that bots never injure a horse, but are beneficial. Others contend that they never injure a healthy horse; but when a horse is diseased, they are deprived of their usual food, and then they may seize upon the stomach, with a view of clearing out for better quarters.

Bots have sometimes collected in large numbers, and stopped up the passages to and from the stomach, and have thus occasioned death.

Numerous remedies have been recommended for the destruction of bots, which are said to be sure; and yet it is contended that any medicine sufficiently powerful to kill them would kill the horse also; for bots have lived in rum, twenty-five hours; in a decoction of tobacco, eleven hours; in strong elixir or vitriol, two hours; in spirits of turpentine, forty-five minutes; in fish oil, linseed oil, and brine, ten hours, without any effect. More powerful substances would kill the horse.

Yet certain medicines may disgust and nauseate the bots, and others may be palatable, and serve to quiet

them; or this vexatious creature may gulp down luxurious food, and become so extended as to allow medicines to act upon him more powerfully, or he may become drowsy with satiety, or dormant, or drunk, and, like bipeds thus situated, know not what he is about, and let go his hold, and be carried off by a powerful cathartic.

Many a horse that has had the colic, inflammation of the bowels, obstinate constipation, or other disease, has been doctored for the bots, and sometimes killed by improper treatment, or by numerous and powerful doses; when he might have been cured, with good management, or nature would have done the work if he had been let alone. In one case, boiling water was poured down a horse's throat, to destroy the bots, and it was effectual; but it was similar to the case of poor Pat Murphy, who was sentenced to be hanged, and saved his *life* by *dying* in prison. Again, a medicine may cure the colic, or the horse may recover *in spite of the medicine*, and then that medicine is recommended as infallible for bots.

As the symptoms of the bots and colic are similar, and one may be mistaken for the other, it may be well to give a medicine that is good for both. Be cautious about giving powerful doses in uncertain cases. Sometimes horses are supposed to have the bots when constipation of the bowels is the trouble.

Symptoms. Sometimes old horses that are hard worked exhibit no symptoms until a short time before a severe attack, or death. In young horses, the symptoms are more evident. In general, the horse loses flesh, eats sparingly, coughs, bites his flanks, strikes forcibly on the ground with his fore feet, and at his belly with his hind ones; shows symptoms of uneasiness, such as groaning, and looking back on his sides, lying down, &c. His belly projecting and hard. In violent cases, without remedy, these symptoms increase, and a discharge from the nose commonly takes place, and at length stiffness of the legs and neck, staggering, laborious breathing, spasms, and death.

Preventives. Make as few sudden changes in food

as possible. Be careful to keep the horse in a healthy state. Keep him well supplied with salt. Occasionally mix with the salt five parts of wood ashes, or give ashes in his water. Give occasionally a table spoonful of lime with his food. Give him, once a week, a little sage with his fodder.

The eggs or nits may be scraped off the horse with a knife. By applying a warm, moist rag to them, they will soon hatch and be destroyed, if the horse be kept from taking them on his tongue. Apply grease or oil to the eggs, and it will destroy them; and it is said it will prevent the fly depositing any more; but to effect this, it should be repeated frequently.

Feed the horse occasionally with the heads of rye; this cuts out and carries off the grubs. If more convenient, the rye may be fed in the sheaf. J. L. Smith, Esq., an extensive dealer in horses, at the south, recommends this very highly. Tobacco leaves, cut fine, or coarse horse-hair, mixed with a horse's provender, will prevent the bots and worms collecting in the maw, and will often kill them. But as hair is indigestible, it should be avoided. A farmer of much experience says that he never knew a horse to be troubled with bots that was fed with a few raw potatoes every week. For other preventives, use some of the mild remedies recommended.

MR. SCOTT'S VIEWS.

In the Indiana Farmer, S. J. Scott makes the following observations: —

1. Wild horses, in a state of nature, never die of bots.
2. Domestic horses that run at large never die of bots.
3. Horses whose food is not changed, or stinted, and who are not over-heated, never die of bots.
4. The bot worm does not eat through the stomach, but is invariably found attached to the stomach of the horse, by its tail, and goes through tail foremost.
5. Bots are most apt to hurt a horse in the spring and fall, or soon after changing the food from dry to green, and the reverse.

His Theory. The bot worm eats of the the food the horse eats, and has its preference; and when deprived of its choice food, or stinted in quantity, it pierces the horse's stomach with the horns in its tail, by which it also adheres to its position, and continues to bore deeper, and finally gets through. The gases and juices of the stomach escape into the abdomen through the holes made by the bots, which soon destroys the horse.

The worm is necessary for the health of the horse, by piercing (not through) the coats of the stomach, and exciting the appetite by irritation. But error of food induces it to irritate too long, and pierce through the stomach.

Sometimes bots collect in such numbers within the lower orifice of the œsophagus, or swallow, as to choke the horse, and he dies suddenly.

REMEDIES.

Mr. Scott offers the following preventives and remedies, some of which are already suggested: —

1. Never change the horse's food from green to dry, suddenly and perseveringly.
2. Never change from dry to green, unless you can keep him to the green food a length of time.
3. Observe the same rule in changing from corn to oats, and the reverse.
4. If the horse is seized with bots, either drench him with something the worm will not eat, and that will nauseate it, such as sweetened milk, blood, fresh meat, entrails of fowls, &c., or drench him with something that will satisfy the cravings of hunger in the bots, such as green moss of old logs, or a decoction of moss, green blue grass, &c.
5. Or, which should be first tried; — if the horse, when found sick, does not refuse to eat, turn him into a lot of green blue grass, or if in the winter, into a wood where different kinds of moss grow, and the horse will soon make a selection that will quiet the bots.

OTHER REMEDIES.

Put eight ounces each, of bees-wax, mutton tallow and sugar, into a quart of new milk, and warm it till all is melted; then put it into a bottle, and give it just before the wax begins to harden. Two hours after, give physic, and the bots will come away, with wax sticking to them.

ANOTHER. Give a table spoonful of slacked lime, in a bran mash or other food, three times a week. In cases evidently severe, give a dose every day, for several days. A writer in the American Farmer says that he consulted authorities, and tried various experiments, in vain; and after giving lime in bran mashes, three times a week, for two weeks, the bots began to pass off. He has since used lime, and has not lost a horse with bots. Voided bots die in lime.

ANOTHER. Vinegar, soft soap, gin, molasses, half a gill each, poured down while foaming. A correspondent of the Albany Cultivator, says this is a speedy cure, and he has given it in fifty cases, with good effect.

ANOTHER. Two ounces of soot in a quart of milk.

ANOTHER. Dr. Phillips, of Mississippi, recommends, in cases where a horse is supposed to have the bots, when in reality it may be colic or other disorder, to give sage or soot tea, or an ounce of laudanum; the first two may be given freely, but the last should not be given oftener than every six hours.

ANOTHER. Give the horse a few sheaves of barley, and it will clear every bot out of him; so says a writer in the "Western Farmer and Gardener," who says he never knew it to fail.

ANOTHER. One quart of new milk, sweetened with honey, molasses or sugar, given fasting; and in two hours drench with a pint of brine, as strong as hot water will dissolve common salt. Two hours after, give a pint of linseed oil.

ANOTHER. Half a pint of train oil, (sperm or other fish oil will answer, but not so good,) given to a horse, will usually give immediate relief.

ANOTHER. One quart of new milk and one pound of sugar; mix, warm, and give. Prepare the same again,

and add half a pint of ground mustard-seed, and administer.

Another. Sweeten one quart of milk with honey or molasses, and give it; then powder half an ounce of aloes, and give it directly in a strong decoction of savine boughs; if the worms have not eaten through the intestines, this is sure.

Another. Take half a gill of spirits of turpentine, turn it into the hand, and rub it on the breast.

INDIGESTION, OR STOMACH STAGGERS.

Causes. Over-distention of the stomach. The horse may get loose and eat to excess of grain, beans, peas, &c.; or he may work longer than usual, and then eat too freely after fasting; he may eat a meal before the previous one is digested, and thus overtask the digestive powers. There are other causes, and sometimes it is difficult to account for.

Symptoms. Staggering, sleepiness, unconsciousness, hard breathing, staring eye, apparent insensibility and helplessness. Sometimes this drowsiness abates, and violence, as in inflammation of the brain, succeeds, only not to so great an extent.

Remedy. Give injections; give oil for physic; and feed moderately on light food that will keep the bowels open.

YELLOWS, OR JAUNDICE

This disease is similar to jaundice in men. Bile is secreted in the liver, and passes by a duct into the intestines, and it is highly important to digestion and a healthy state of the bowels. Sometimes, from inflammation or other disease in the liver, or obstructions in the gall-duct, or from thickened bile, this fluid is interrupted in its natural passage into the intestines, and is thrown back into the circulation, giving a yellow tinge to the whole system. The horse and deer, unlike all other animals, have no gall-bladder, but the bile passes directly from the liver, through the gall-duct, to the intestines.

Causes. It is sometimes caused by low conc tion, but more frequently by high feeding and want of exercise. Inaction is a fruitful cause of this disease, both in animals and the human race.

Symptoms. Yellowness of the eyes, mouth and tongue, higher yellow color of the urine, palpitation of the heart, weariness in the limbs, dulness, stupidity, sleepiness, drooping of the head, general debility; the hair of the mane and tail becomes loose; the dung scanty and pale, generally hard, and sometimes covered with slime.

General Treatment. In all cases see that the bowels are in good condition; this may be effected by giving laxative food, such as bran mashes and roots; and if there be costiveness, this feed for two or three days will prepare the bowels for physic, a moderate dose of which should be given; and if the bowels be not relaxed a little by the mashes, back-rake, and give exciting injections before giving physic.

It would be well to back-rake as soon as the disease is discovered, if there is much costiveness. Continue light, laxative and green food. In very severe cases, that will not yield to medicines, roweling may be resorted to. Most cases may be cured by diet, (and physic, if the bowels do not become relaxed by the food,) and some of the following medicines. Bleeding should be avoided, as the pulse is generally slow and weak.

Remedy. One fourth of an ounce of gamboge, half an ounce of saltpetre, one ounce of alum, one ounce of green copperas, (*sulphate of iron*) — pulverize all, and put them into a bottle with a pint of cold water. Stop tight, shake well, and let it stand over night, and it will be fit for use. Give a table spoonful for a dose, three mornings running; then omit three, and so on until nine doses have been given.

Another. Take equal quantities of aloes, Venetian soap, and honey; make into pills, and give half an ounce daily, for a week. If this does not cure, steep celandine and saffron in cider, and give a quart a day.

In the human subject, raw eggs have cured in obstinate cases.

From our youth up we have known the following as a

sovereign family medicine, in jaundice. It may be used by patients in a very weak, low state, and with a cough, without injury, when powerful astringents would not be safe. It restores to action the digestive powers, corrects the derangement in the biliary organs, relieves when food injures, or prevents the injury, restores the appetite, and regulates and does not bind the bowels, like most astringents. We have no doubt that it is valuable for animals, in the same complaint. Prepare it thus:

Take the bark of white ash; if from old trees, take off the ross to the live part. If green, partially dry a part of it; sweep the oven, and kindle the bark in it, using the dry part; then lay on the green; burn in a slow draught; throw in the ends and raise up the bottom, and it will all burn to pure white ashes. Put two heaping table spoonfuls into a bottle of very good, strong old cider, and shake it a few times. A common wine-glass full is a dose for the human patient, to be taken three times a day, before eating. Give an animal a pint for a dose, sprinkled on fodder, or mixed with oats, bran, or meal, or turn it down the throat. A larger dose may be necessary. A quart would not injure.

We regard this as one of the safest medicines in all conditions of the system, and one of the most efficacious. We have known it to cure in almost hopeless cases, when, from the severity of the disorder, it was thought that consumption was connected with it. White ash is the variety used so extensively as timber for carriages, handles for hoes, shovels, forks, rakes, and many other purposes.

GLANDERS.

This is one of the most formidable and disagreeable of diseases. It commences in an irritation in the membrane of the nose; as it advances, tubercles form, matter is discharged, the bones of the nose and head become diseased and carious, and the poison is absorbed into the circulation, and affects the whole system.

This disease may be produced, as it often is, by bad stable management, such as hot, filthy and ill-ventilated

stables; or it may be communicated by infection, contagion, or inoculation, which last form includes contagion. In some few cases, nature will cure, if the cause of the disease be removed. But almost all cases of confirmed glanders will prove fatal in spite of care and medicine. If taken in season, some cases may be cured. Almost every drug and medicine has been used for this disease, and generally without success; a few cases have been cured by a decoction of tobacco. It is of the highest importance to guard against its production or propagation.

Dr. Burgis says: "I have known several instances in which there was no possibility of contact with glanderous matter, and yet the disease was developed in healthy horses. A gentleman of fortune in the west of Ireland had had his stud infected with glanders; every particle of wood-work in the stables, including stalls, rack, manger, &c., was taken down and replaced with new materials; the plastering on the walls was completely removed, and the pavement ripped up; and all was replaced with entirely new work; but the first horses that were again put into those stables became infected, and they were ultimately razed to the ground. It would even appear that the contagious principle remains for a long period in any stable where glanders may happen."

GLANDERS IN MEN.

A number of cases have occurred of glanders in men, from inoculation, by getting some of the glanderous matter from the horse on some part of the body where the skin was broken; and some cases of glanders in men have occurred without inoculation, but by infection. In Paris, a groom slept in a stable occupied by a glandered horse; some days after the death of the horse, he was attacked with the same disease, characterized by pustular and gangrenous sores over the whole body. He died, and with some matter from the sores, a foundered mare was inoculated, and she had a true case of the glanders, of which she died.

A young groom was in the habit of wiping the face of a glandered horse with his pocket handkerchief; he

aught the disease, of which he died in dreadful agony, very bone in his head becoming carious. In severe cases, there is no cure for man or horse. We have an account of one case being cured in man, by filling the wounds with lint or cotton, steeped in turpentine.

In managing glandered horses, great care should be taken to prevent the infectious matter coming in contact with the membraneous linings of the mouth or nose.

It was stated in an English paper, in 1844, that since the year 1838, no less than thirty persons had sunk under this terrible malady, which counted as many victims as patients.

Scarcely a year passes without an account in European journals of some person dying of glanders. A student lately died in Paris of glanders, contracted by cutting himself while dissecting a glandered horse at the celebrated veterinary school of Alfort. He had the best medical aid from the beginning of the sad occurrence.

HORSE-AIL.

This disease occasionally prevails extensively among horses. It is often very severe, and unless properly attended to in season, it gradually reduces the horse to a skeleton, and often proves fatal. Badly managed cases sometimes cause the glanders; otherwise the glanders is not common in this part of the country. It prevails most in the cold season, generally commencing in the fall. Horse-ail is infectious, and very liable to occur without infection, as it is common to young horses, which do not go from home, or come in contact with others that are infected. The English call this disease strangles.

Symptoms. Stoppage of the head, running at the nose, swallowing in the throat, loss of appetite, dulness about the eyes, general stupidity, and sudden debility. The symptoms are similar to those of a cold, or the influenza in the human race. It often causes a tumor under the jaw.

Remedy. E. Wood, Esq., an intelligent correspondent of the "Maine Farmer," recommends the following treatment: Take up a piece of skin on the breast, and

cut crossways through the skin, so as to make a hole sufficient to get in the forefinger, which put in and skin downwards and crossways the length of the finger. Fill the bag thus made with cut raw onion. Then bleed, if the cough is hard and distressing; and feed with potatoes, if the animal can eat them; if not, give gentle laxatives. Under this treatment, he has never lost a horse or colt, and they have seldom lost much flesh.

Another. We have treated horses in the following manner, with success: Make a slow fire of old boots, shoes, rags, herbs, roots, &c. When fired a little, smother them so as to make much smoke and steam; then set a barrel, without heads, over the fire, and hold the horse's head down in the barrel, and smoke him well. This will soon produce a copious running at the nose, and he will be so well pleased that he will voluntarily hold his head in the smoke. Continue this half an hour or more daily. Meanwhile, give him potatoes and warm bran mashes, and gentle physic, if there be much costiveness which the laxative food will not remove. If he has much fever, treat him for that.

Further Treatment. In addition to other remedies, if the case be severe and the blood has become bad, put a rowel in the breast; and if the swelling under the throat tends to suppuration, encourage it by applying emollient poultices, or blistering ointment, and fomenting baths; and when the swelling becomes soft, and the matter fluctuating, lance it. Blow snuff up the nostrils. Keep warm; give warm, soothing drinks; curry and rub frequently. Give a little walking exercise in pleasant weather, if the animal has strength to bear it without fatigue. If there be much fever or cough, treat as recommended in these disorders. Keep the head running and the bowels loose; and if the heat and fever abate, and the animal is poor, give tolerably nourishing food, continuing roots or mashes to keep the bowels in a goo state.

DISTEMPER, OR EPIDEMIC CATARRH.

Symptoms. This disease usually commences with a shivering fit, hot mouth, heaving of the flanks, and cough. There is a discharge from the nose, first watry, then thicker, and then offensive matter. The glands of the throat swell, weakness succeeds, the legs swell, and there are swellings on the body, but these are favorable.

Remedy. Sweat well, and rub till quite dry; oackrake; give two drachms of Barbadoes aloes, and in twelve hours another drachm. If the constipation be obstinate, give exciting injections. Clothe warmly, particularly about the head. If the animal will not eat, on account of sore throat, clyster; hot mashes should be put under his nose, in a nose-bag, to encourage the running. Feed with corn meal, bran or mashes, and dampened hay. Potatoes are good. If he refuses to eat, drench with very thin mash or thick gruel.

This disease is similar to the horse-ail, or a modification of the same disease, and the treatment is similar. The steaming and smoking recommended in that disease would be good to clear out the head. Camphorated spirits, with the addition of cayenne pepper, is good for the throat, rubbed on externally; so is the liniment on page 51.

COLD, OR COMMON CATARRH.

The Causes of this disease are numerous and the effects are various, as different parts are affected, and an affection of the same part varies at different periods. Sometimes the head is principally affected; at other times the eyes share largely in the complaint; again it may be mostly in the nasal orifices, producing a copious discharge of mucus; at times it is mostly in the mouth; again in the throat; and sometimes in the back and limbs, producing stiffness and soreness In many cases, this disease is similar to horse-ail.

It arises from the same causes as bronchitis, pleurisy and pneumonia, as named on other pages. It is most

common in the spring and fall, not only from the changes of weather at these seasons, but from the great change the horse undergoes from moulting or shedding his coat, which produces fever, debility, sweating on the least exertion, and susceptibility to colds and other kindred diseases.

Colds are often produced by sudden changes in the temperature of the atmosphere, without proper protection. Sometimes they are caused by a peculiar state of the atmosphere, and then they become epidemical, and often very extensive and severe.

The Symptoms are numerous and various, according to the nature and severity of the disease, and the part that is affected. Sometimes there is moderate fever; sometimes the inflammation is high; at other times the pulse is slow and weak. The eyes are sometimes much affected, and are red, dull, running and weak, and occasionally much inflamed. The head is often affected internally, and there is a copious discharge from the nose. Sometimes the mouth is inflamed and sore, so that the animal cannot chew without great difficulty. The throat often shares largely in the evil, and is so inflamed that swallowing is very difficult. Sometimes there is shivering, the mouth hot, the coat staring, the belly tucked up, the nose red, the flanks heave. These are the most prominent symptoms. Some exist in one case, others in another.

Remedies. These are various, as there are different degrees of severity in the disease, or it varies in its peculiar nature, and different parts of the system are affected, or all share in its influence. The best remedy is good management in avoiding causes, and predisposing causes, and placing the patient under favorable circumstances for recovery. In many cases medicines will not avail much, as the disease will run its course in spite of them, and nature may work a cure in time. When there is high fever, treat the horse for that affection. If there be costiveness, remove it, using mild means, if sufficient, and powerful ones if necessary. While the fever continues, feed lightly, and with laxative food. But if the animal is in a low condition, and there is no fever, give nourishing food; keep warm, and apply remedies for

the local affections. If the head is affected, promote the discharge, as in horse-ail. For inflammation of the eyes, or cough, treat as in those diseases. For sore mouth, use a wash of alum-water, or a strong astringent tea; for sore throat, treat as in distemper.

COUGH.

In all disorders accompanied by a cough, the true cause should be ascertained. Sometimes the cough is only a consequence of a chronic or seated disease, as is the case in heaves, &c. At other times it is symptomatic of recent inflammation in the throat or lungs Sometimes it is brought on by horse-ail, which is an inflammation of the mucous membranes of the head and glands about the throat. We have found salt, given freely, together with an occasional dose of saltpetre, to be an excellent remedy in cases where a horse has had the horse-ail, and the cough holds on after the original disease seems to have gone. For a dry, husky cough, not attended with the heaves, green or laxative food, such as roots, or mashes of scalded bran, in which is put the pulverized root of elecampane and lovage, has been found beneficial. If there should be found indications of heaves, put a spoonful of ginger, once per day, in his provender, and allow him to drink freely of lime water. Horses that are kept on musty hay, will very soon begin to cough. The best remedy for musty hay cough is, to change the diet to good, sweet clover. — *Maine Farmer.*

Another Remedy. Human urine put into a a bucket of water, and given to the horse, or sprinkled on his fodder. This remedy has been much used by some, and with excellent success.

Another. The boughs of the cedar have been used as a remedy, with complete success. They should be cut fine, and mixed with the grain given to the horse.

Another. Arse-smart, as dry fodder, has often been given to horses for cough, with good success. A dose of this fodder occasionally, in the winter, is good for the health of the horse; and it should be saved for that purpose.

ANOTHER. We once cured a horse of an obstinate cough, on which a number of medicines were tried without effect, by feeding him exclusively on sheep's orts. They have peculiar medicinal properties, which they imbibe from the dung and urine. [See Calves among Sheep, under the head "Neat Cattle."]

ANOTHER. Boil a small quantity of flax-seed; mix it in a mash of scalded bran, adding a few ounces of coarse sugar, or some molasses or honey.

BRONCHITIS.

This is an inflammation of the air passages in the lungs, and it often extends to the windpipe and throat. It is produced in the same way as a common cold, and is often the extension of inflammation from the throat downward. It is sometimes slight, and soon disappears; at other times, though it may come on gradually, or almost imperceptibly, it becomes obstinate and dangerous, as it may extend to the lungs, and affect them also. Therefore it deserves early attention. The causes are the same as those of influenza, pleurisy, inflammation of the lungs, and colds.

SYMPTOMS. Cough, loss of appetite, a discharge from the nostrils, quickening of the pulse and breathing. These are the early indications of this disease. The pulse soon becomes very quick and weak, the respiration accelerated, the membrane of the nose and eyelids of a deep red color, and the discharge from the nose diminished or suspended. When these last symptoms are exhibited, it frequently proves fatal.

But it generally appears in a milder form, with only the symptoms first named. It is distinguished from common catarrh by the quickness of the pulse, ranging from forty-five to sixty pulsations in a minute, and the disturbance in the breathing. It may be known from inflammation of the lungs, by warmth at the surface and extremities, and the more moderate action of the pulse. Sometimes it is complicated with other diseases, and the symptoms will confound the practitioner.

REMEDY. Those who practice bleeding to great extent

onsider it necessary in this case; but a cure may gen erally be effected without this operation. Give a mod. erate dose of physic, but not of aloes, in this case; and if there be costiveness, give clysters; and back-rake, if necessary, owing to obstinate constipation. Give the following fever medicine, or some other sedative dose:— Powdered digitalis, one drachm; emetic tartar, one drachm; saltpetre, three drachms; sulphur, one drachm; linseed meal, two drachms; beat together, and make into a ball, and give twice a day; or mix in gruel, and turn down.

After the inflammation has abated, a seton may be inserted in the breast, or the breast and sides may be blistered. Keep warm; well clothed; rub often; allow pure air; give bran mashes and green food; or, if in winter, give carrots or potatoes, and a little clover hay; but feed lightly, until the inflammation abates.

PLEURISY.

This is an inflammation of the pleura, which is a thin membrane enclosing the lungs and lining the chest.

Causes. The principal are exposure to cold and wet, sudden changes in temperature, hard riding, and the absurd practice of riding horses, when hot, into cold water, to save trouble in washing them; riding against a sharp wind on a very cold day; and wounds penetrating into the chest, and injuring the pleura.

Symptoms. In some respects, there is no difference between the symptoms of an inflammation of the pleura and the lungs. Fits of shivering; loss of spirits and appetite; hanging of the head, and disinclination to move, are the same in both complaints. In pleurisy, the cough is shorter and more painful. The breathing is different. In the lung complaint, the inspiration or drawing in of air is very slow, and the expiration or out-breathing is quick, and almost spasmodic. In pleurisy, the inspiration is a short, sudden effort, and seems broken off suddenly, before completed; and then the animal expires as slowly as possible, in order to avoid the repetition of the painful spasm.

As pleurisy is not so deep-seated as the other disorder, there is more pain and tenderness on tapping or pressing on the side. The pain is sometimes so great, that the horse lies down and rolls. When the lungs are inflamed, the membrane of the nose, which is an extension from the lungs, is inflamed also, and looks extremely red; but as there is no connection between the pleura and nose, it is not so red in pleurisy. Sometimes the color is not changed until the inflammation extends to the lungs.

When the lungs are inflamed, the extremities are cold; but in this disease, the heat is increased, or the temperature is variable. In that disorder, the pulse is rarely quickened; but in this, it is strong and rapid. It is necessary to observe these nice distinctions.

Remedy. Sweat and rub freely to invite blood out. Give injections and gentle physic; and then give sedative medicines, and feed on light, cooling food, such as mashes, potatoes, or carrots, and green herbage, if in season. Clothe the animal warmly, this will invite the blood outwardly to the skin, and reduce the internal heat. Frequent friction on the skin will also promote this favorable tendency of the blood. For the cough, give flax-seed tea, sweetened with molasses, sugar, or honey.

INFLAMMATION OF THE LUNGS.

This disease, called also pneumonia, does not occur so often as many suppose; as a common cold, catarrh, bronchitis, and pleurisy, are often mistaken for this disorder; and as all these have their seat in the neighborhood of the lungs, or on those parts connected with them, they will, when very severe, or when neglected, or ill treated, all tend to this complaint.

Causes. They are numerous. The same as produce severe colds. The perspiration which is thrown off through the pores of the skin being checked, it is thrown upon the lungs. The blood, in a measure, leaves the extremities, and tends inwardly, producing an unusual action on the vital organs. [See page 90.]

Among the causes are, exposure to cold and wet, suc

den cooling after being heated; neglect of drying properly after being wet; [see page 89;] lying out cool nights after labor; standing in the cold after being heated by fast driving; sudden changes to cold, without sufficient protection; over-exertion, and neglect; change from a warm to a colder stable; and sometimes a change from a cold to a hot stable.

Symptoms. Shivering fits; icy coldness in the legs and ears; an obscure, oppressed feeling in the pulse, without material change in its motion, at first indicating congestion in the lungs, and the heart has not power to impel the blood onward; quick and laborious heaving of the flanks; indication of pain by a turning of the head, and gazing at the sides; standing stiff and bracing; expansion of the nostrils; drooping of the head; mouth hot; membrane of the nose red; entire loss of appetite.

Remedy. Sweat freely, (as on page 107.) to aid the diaphonetic medicine. Give clysters, and if there be much costiveness, only mild clysters; and feed bran mashes and warm gruel, and feed lightly on loosening food; but do not give physic, on account of the sympathy between the lungs and the bowels. After the inflammation abates, if costiveness continue, give half doses of physic. In the beginning, the following, or some other sweating or diaphoretic medicine, should be given. Tartar emetic and asafœtida, one drachm each; liquorice, one drachm; make into a ball, and put down the throat, or dissolve, and give in gruel. Clothe warm, and hand-rub thoroughly, but gently, on account of tenderness, to invite the blood outwardly.

As pure air tends to abate the heat of the lungs, place the animal where he can enjoy it, but not in a current, nor where it is much colder than he has been accustomed to. If it be a little cooler, supply the deficiency of heat by warmer clothing. Close, hot stables are very injurious in this case; and the animal seeks relief by placing his head in the direction of pure air, even sometimes inhaling it from a crack or knot-hole.

After the sweating, give some sedative medicine, such as are good in fevers. Clover tea, or raspberry tea is

good. Roweling is sometimes practised in severe cases, rubbing the seton in blistering ointment, to give more speedy and greater effect; but generally, hand-rubbing, often and thoroughly, particularly on the legs, will obviate the necessity of roweling.

Blistering is preferred to roweling, as more neat and expeditious. An extensive application should be made over each side the chest. The following is a good blister ointment for this purpose: — Powdered cantharides, five drachms; lard, four ounces; spirits of turpentine, one ounce; or use cantharides with sweet oil or lard. Sometimes the rubbing on of spirits of turpentine is sufficient, without the blistering application.

Some distinguished veterinarians object to roweling or blistering, until the inflammation has abated, as it tends at first to promote it; others, of equal authority, think these modes may be resorted to, even in the early stages of the disease. This is only one among numerous cases in which we are led to inquire, "Who shall decide, when *doctors* disagree?"

HEAVES — THICK AND BROKEN WIND.

Under this general term, are classed several affections, frequently originating from the same or similar causes; all affecting seriously the respiration of the horse. There is broken wind and thick wind, which, in their various modifications, and degrees of severity, produce what are called, pipers, roarers, wheezers, whistlers, and grunters.

Thick Wind. When the lungs are inflamed, there is a great deal of congestion, and many of the air-cells are filled with coagulated blood; and when they have been long distended, that blood becomes organized, the cells obliterated, and this portion of the lungs a solid mass, unfit for respiration; of course the act of breathing will be laborious, and more rapidly repeated, to make up the deficiency. This is called thick wind. Sometimes it is a consequence of bronchitis or catarrh; and then it arises from the lining of the air passages being thickened by inflammation, which lessens the calibre of the air-tubes, and makes the breathing difficult; and on this account the breathing will be more rapid as well as laborious.

There are other causes of thick wind. A horse unaccustomed to exercise is thick-winded, because the lungs cannot at once accommodate themselves to the full and deep breathing which the exertion requires. A horse, under exertion, on a full stomach, is thick-winded, as there is not room for the lungs to expand freely. The practice of grooms in galloping horses after drinking, is very injurious,

Remedy. There is no cure for cases arising from the obliteration of the cells in the lungs, and this shows the importance of prompt attention to those diseases which produce this complaint. Much may be done by good management to relieve the animal, and fit him for service. Give the food in small compass, feeding freely with roots and grain, and sparingly with fodder. Feed regular; give water often; give moderate exercise; work moderately and regularly; but not on a full stomach. Let all the food be pure, and of a good quality; and cut and moisten the fodder. In this way, the condition of the horse may be improved, so that he will do good service.

Broken Wind is sometimes caused by violent and protracted inflammation of the lungs; it is also produced by over-working a thick-winded horse; but it is more frequently caused by sudden exertion with a loaded stomach, either from eating or drinking. It is owing to a rupture of some of the cells of the lungs; consequently the air is readily admitted during the expansion of the lungs, but in the expulsion of the air, it becomes entangled in the ruptured cells, and is forced out with great difficulty; hence the in-breathing is naturally performed by one effort, and the out-breathing by two, occupying a longer time.

Remedy. There is no cure. Much may be done to alleviate. Pursue the course recommended for thick wind. [See page 97.]

Heaves. Although there is no remedy for severe cases of heaves, yet horses may be so far relieved that they may appear to be cured, while under good management. We add several remedies, as they are regarded.

Remedy. Two table spoonfuls of tar, mixed with the

yolk of an egg, given in the morning, fasting, will be useful.

ANOTHER. Lime-water, or a little powdered lime, in the feed.

ANOTHER. Tar and honey, a table spoonful each; ball licorice, half the quantity; opium, eight grains; mix, dissolve and give in a quart of new milk, every other morning, fasting, and feed on smart-weed hay.

ANOTHER. A pound of antimony, four ounces of rosin, eight ounces of sulphur, eight ounces of saltpetre, powdered fine and thoroughly mixed. Give half a table spoonful once or twice a week.

ANOTHER. Three quarts of sweet milk and a tea spoonful of oil of vitriol, (*sulphuric acid;*) mix with the food.

ANOTHER. The root of blue flag is said to be one of the best remedies. It may be used green or dry. If green, cut it fine; if dry, pulverize it; and give with meal or oats, morning and night. Half a table spoonful is a dose. After eating it a few times, horses like it. It is also good for stallions that have been injured by excess in their peculiar line.

Asafœtida is considered a good ingredient in a medicine for the heaves. As it is strong, use only a small quantity.

DISEASES OF THE URINARY ORGANS.

Strangury, or difficulty in staling, and suppression of urine, are great evils that are incident to the urinary organs, and most people, judging from these prominent indications of disease, attribute them all to the same disease, and give the same medicines, which are diuretics, that in most cases have an injurious effect, aggravating the disorder, and increasing the pain.

These evils are the result of several diseases, different in their *nature, location, causes* and *remedies;* and we have here arranged them all under one general head, in order to obviate the confusion and difficulty that now exist from a wrong view of the subject. Whether there is a suppression of urine from inflammation of the kidneys,

or from the kidneys becoming inactive and dormant, so that the secretions are suspended, or a stoppage from a stricture at the neck of the bladder, or other cause, or an inflammation of the bladder, there will be, after a while, frequent vain and painful attempts to discharge urine. This leads superficial observers to treat all diseases of the urinary organs in the same manner.

INFLAMMATION OF THE KIDNEYS.

This is a very serious disorder, as it attacks a part already, in too many cases, injured by previous absurd treatment.

Causes are, over-fatigue, bad food, exposure, driving a horse long without staling, which produces excessive pain, from a large collection of water in the bladder that is absorbed by the kidneys, to their serious injury. Giving diuretics too freely produces excessive action on the kidneys in the secretion of urine, which weakens and inflames them. This shows the importance of caution in treating this disease. Diuretics may afford temporary relief, but the disease will return with increased violence.

Symptoms. There is considerable fever. This is clearly indicated by the heat of the mouth, the heaving of the flanks, and the acceleration of the pulse. The feeling of very acute pain is plainly shown by the frequent, steadfast gaze at the affected part; and that part is marked out by the direction of the muzzle to the loins more than to the belly. There is disinclination to move, because the inflammation rapidly spreads from the kidneys to the muscles of the loins, and the least motion of them will give intense pain. In order that there shall be as little stress as possible upon these muscles, the hind legs are straddled widely apart.

This inability to move without pain assumes, in bad cases, the form of palsy of the hinder extremities, and occasionally runs on to actual palsy. If the hand is placed on the loins, an unnatural warmth is felt, and the horse shrinks and crouches under the slightest pressure.

The urine, which, from the beginning, was voided with some difficulty, escapes in smaller and smaller quantities, and the discharge of it is accompanied by

increasing pain. It becomes high-colored, perhaps bloody. It diminishes by degrees, until only a few drops are voided at a time, and at length it ceases altogether; yet still the horse strains on, and the straining is accompanied by increased agony. The secretion of urine cannot be suspended but a little while without danger or death.

Remedy. Profuse sweating is recommended. Then give physic, but not such as has a diuretic effect. Give no salts nor calomel. Give a moderate dose of aloes, with about one third dose of linseed oil. Give injections of warm water frequently, as it will aid the physic, and act as a fomentation in the neighborhood of the inflammation. A decoction of marsh mallows is excellent as a mollifying clyster, and given as a dose, it has a soothing effect.

Foment the loins with hot water, and apply a blister over them; but use no blistering plaster or composition that contains cantharides or turpentine, as they have a diuretic effect, and sometimes cause great pain in the urinary organs. Apply the following poultice, which has no such effect: Ground mustard and linseed meal, (or Indian meal,) equal parts; mix with boiling vinegar, and apply on the loins. This will have a very favorable effect. Give gentle physic and light laxative food, and give sedative medicines.

If the horse does not regain the strength of his hind limbs, apply the following strengthening compound to his loins: Pitch, three pounds; tar, one pound; beeswax, half a pound; mix together, apply thick to the loins, when cool enough, and scatter some locks of light tow or other similar material, before it gets quite cool.

INFLAMMATION OF THE BLADDER.

Sometimes an inflammation of the mucus lining of the bladder exists at the same time with inflammation of the kidneys, and is caused by it; as the nature of the urine is changed by the diseased state of the kidneys. It becomes acrid and irritates the coat of the bladder. Other causes of this disease, are stimulating food, poisonous herbage, and foreign substances, such as a stone or gravel in the bladder.

Symptoms. Frequency of staling; mingling of mucus, or pus, or blood, with the urine; a slight additional heat felt when the hand is introduced into the rectum and rests on the bladder, and the acute pain which that pressure occasions, as shown by the shrinking of the animal.

Remedy. Sweat freely, rub dry, and give aloes as physic; only a mild dose, as the lower intestines sympathize with the sensitive state of the bladder. Give a plenty of linseed tea. Give mild and warm injections, such as water, or herb tea, as these come near the bladder, and serve as fomentations. In England, linseed tea is injected into the bladder by means of Reed's catheter. In case of mares, this may be done with a more simple apparatus.

INFLAMMATION OF THE NECK OF THE BLADDER.

In this disease, there is a spasm of the sphincter muscle at the neck of the bladder, closing the orifice, so that little or no urine can pass. To determine whether there is a difficulty in staling, from inflammation of the neck of the bladder, or a suppression of urine from diseased kidneys, the hand, well oiled, should be introduced into the rectum. If there is inflammation of the kidneys, the bladder can scarcely be felt under the gut; but if the neck of the bladder is inflamed, the bladder will be full, and this will be evident from the protrusion upon the gut.

Causes. A severe cold, irritability of the bladder generally, a stone pressing on or near the neck of the bladder, gravel passing through and injuring the urethra, or the cruel and worse than savage custom of injecting into mares a tincture or infusion of cantharides, or other powerful stimulant, to hasten the periodical heat. Sometimes driving the horse long, without an opportunity to stale, causes a spasm in the neck of the bladder, and is unattended with inflammation.

Symptoms. At first there will be frequent discharges of urine, then a gradual decrease, both in the quantity and the size of the stream, and at length a total cessation. The extended bladder can be plainly felt under the hand in the rectum, rather tender and painful, but not hot.

Remedy. Sweating to the fullest extent is recommended; and then, during the temporary relaxation of the spasmodic action, pass the catheter into the bladder, and evacuate its contents. An elastic catheter, made for this purpose, is necessary, with which relief may be readily given, without any injury. For want of this valuable apparatus, an incision is made into the urethra, at the curve, and the water let off with a common catheter; but this wound is difficult to heal, and sometimes it never heals, and the water is discharged there with great inconvenience, as it may unfit the animal for labor. An opening is sometimes made in this way, when there is an obstruction in the passage below this point.

Back-rake, give mild physic, mashes, and linseed tea for drink; and if means are provided, empty the bladder whenever it is full, of which the attendant may judge, or ascertain of a certainty, by introducing the hand into the rectum. An infusion of belladonna, (two ounces of leaves, or two drams of extract, to a pint and a half of water,) may be injected into the urethra, and thrown into the bladder.

At the same time, give a scruple of powdered belladonna internally, morning, noon, and night, made into a ball with linseed meal (or other meal) and molasses, or give in linseed tea or gruel; or one drachm of opium may be added. Fomentations, as hot as could be borne, and frequently applied, have given relief; and it may be well to try this simple application in the beginning. Use thick cloths, and apply them all along the urethra, particularly at the upper part, and use injections in connection. Dr. Holmes, of the Maine Farmer, informs us that he was requested to see a valuable horse suffering under this disease, and still more by reason of numerous diuretic doses given him; and he was relieved by the application of bags of boiled hops, frequently changed.

Another Cause of Strangury. Sometimes a stoppage of urine is caused by a pressure of dung on the neck of the bladder; and this immediate cause is produced by constipation of the bowels. The hardened fæces pass

off slowly, lodging in the rectum, and pressing on the bladder.

REMEDY. Back-rake, and give injections for immediate relief, and remove the costiveness by bran mashes, roots, and green food.

DORMANT STATE OF THE KIDNEYS.

Sometimes the kidneys become dormant or inactive, and cease to secrete urine. To ascertain their condition, when there is no discharge of urine, but frequent and painful efforts for this purpose, examine thoroughly, and see whether the symptoms indicate any of the disorders we have named; if they do not, a suppression of urine may be supposed to exist from a torpid or sluggish state of the kidneys, and diuretics may be given. But give only mild doses, lest there be a mistake; for it requires skill and experience to judge accurately of these disorders, which have been so much confounded one with another.

GRAVEL AND STONE IN THE BLADDER.

It is common for a horse to discharge gravel with his urine. There is nothing that can be given safely that will dissolve these calculi, and all that can be done is to give a diuretic dose, and, in an hour after, half a pound of common salt in a quart of water, to excite thirst, that large quantities of water may be drunk and discharged and the gravel washed out. Stones are more common in the kidneys of the horse than in the bladder. In either case, the symptoms are very obscure. A horse affected with stone in the bladder is subject to colicky pains, and, during these pains, he voids his urine with difficulty and violent straining. Mind this, in examining for gripes or colic. The presence, size and situation of stones in the bladder may be felt from the rectum, as named in other diseases of the urinary organs. Lithotomy, or cutting, is sometimes practised for this complaint; but this requires a skilful and experienced surgeon.

DIABETES, OR PROFUSE STALING.

This is a very weakening disease. The horse urinates very often; the urine is colorless, and is discharged in immense quantities. He would drink forever; and the water is hardly down his throat till it is thrown among his feet as urine. He cannot endure hard labor, and his coat soon stares: he refuses to eat, loses flesh, and becomes extremely weak. As the disorder proceeds, the pulse becomes quick and weak.

Causes. They are various, and sometimes difficult to trace. Among them, are mow-burnt hay, bad oats, and other bad fodder; sometimes it is caused by an impoverished state of the blood, arising from the use of strong medicines. Ill usage, and the want of green food at the proper season, are also causes.

Remedy. Change the food, and let the horse rest from hard labor. Put lumps of coarse salt, and a piece of chalk, in his manger; put pea or bean meal in his water, and give carrots and good hay. By a change of diet, and good treatment, he will generally recover without medicine; but if the disease continue, give a dose of physic.

If this course does not cure, astringents must be resorted to; the following is good: — Catechu, two drachms; opium, half a drachm; linseed meal, two drachms; make into a ball, with molasses, or mix in gruel. Give this dose morning and night; and if it binds the bowels, add one drachm of aloes, or some other laxative, in small portion, to each dose; or keep the bowels open with bran mashes. If it be in season, give green food.

POLL EVIL.

This disease is a swelling on the poll of the head, just back of the ears. If not dispersed, it suppurates, and generally becomes a formidable disease. Some regard it as incurable; but severe cases have been cured.

Causes. They are numerous. The most common are, a painful blow inflicted on the poll, striking or rub

bing the head against the lower part of the manger or other timber, striking the poll in passing into a low stable or elsewhere; jerking back the head, when hitched by the bridle or halter. It is sometimes occasioned by a general morbid state of the system. It is often caused by tossing up the head to avoid the pain and discomfort occasioned by the check or bearing reins, which constrain the head in an unnatural position. [See page 77.]

Symptoms. At first, the animal appears restless, throwing up his head, and returning it. He soon drops his head, holding it first on one side, and then on the other. He appears dull about the eyes, and sluggish in all his movements. Heat and swelling of the poll follow. If the evil is deep, the swelling is wide; but when near the surface, it presents a point.

Remedy. When taken early, the disease may sometimes be dispersed. Abate the inflammation by bleeding and physic, and frequent application of warm vinegar, saturated with salt. Observe a cooling regimen, reducing the quantity of oats, and soon discontinue them altogether. Apply an astringent or scattering poultice; but be careful and not pursue this course far, unless it is likely to succeed.

If heat, swelling, and tenderness increase, matter will form in the tumor, and the whole course of treatment must be changed; a full habit will be necessary, in order to bring it to a suppuration as fast as possible; and the parts should be softened and drawn by a poultice of oat or Indian meal, applied lukewarm, twice a day. The power of the poultice may be increased by roasted onions. Mix with it a small quantity of hog's lard or sweet oil. It should cover the whole swelling two inches thick.

When the tumor is ripe, if near the top, it may break; but if deep, it must be opened. The opening should be a little below the centre, and lengthwise, lest the cervicular ligament under the mane be cut, which will cause the head to droop ever after. In order that the matter may run out as fast as formed, and not collect at the bottom of the ulcer, corroding and irritating it, a seton should be inserted, penetrating through the bottom, and

coming out on the side of the neck, a little below the bottom of the abscess. Perhaps, by pressing the parts, in order to produce a discharge, keeping it open at the top, and by cleansing with frequent washings in strong soap suds, the matter can be expelled without a seton.

If the ulcer deepens and spreads, and threatens to eat the ligatures of the neck, cleanse it by a weak lye of wood ashes, and apply a poultice of the soft pulp of roasted carrots, to which add a small quantity of charcoal powder. Should the healing of the wound proceed too fast, the granulations should be touched with some caustic. The operator should be cautious, as the acrimonious matter discharged from the abscess may be absorbed at the roots of his finger nails, and infect the system with poison.

ANOTHER. Friend Solon Robinson says, in the Franklin Farmer, "Here is a cure for poll evil, in its worst state; when the swelling breaks, put into the opening from which the matter discharges, a lump of pearlash or potash, as big as you can with your finger. These applications will cure the worst cases of poll evil or fistula I ever saw."

ANOTHER. A correspondent of the Albany Cultivator recommends, as soon as the tumor appears, to make a strong decoction of the root of the meadow plant or vine, known by the name of poison ivy, mercury, or poison vine, (*Rus radicans;*) bathe the tumor with this decoction every day, as hot as the horse can bear it, and heat it in with a hot iron. It will soon begin to subside, and, after some weeks, disappear. He cured a horse in this way, that was so bad that he could not drop his head to drink.

ANOTHER. Several severe cases have been cured by washing with soap suds, and putting common salt into the ulcer, repeating it frequently.

ANOTHER VIEW OF THE CASE. D. P. Mosely, of West Liberty, Kentucky, thinks this disease may be caused otherwise than by external injuries. He says, "The cerumenous glands are internally connected with the ear and *occiput*, (hinder part of the head.) Their office is to secrete cerumen, (ear wax,) which lubricates the

organs of hearing. When these glands become injured by colds, fatigue, &c., the secretions become obstructed, and produce swellings, and suppuration. He recommends a stimulant upon the muscles of the ear, as follows:—Put three spoonfuls of finely pulverized flint glass into a bottle containing a pint of urine; bury it in the ground for three days; then shake it up, and put one spoonful into each ear of the horse, once a day, for three, four, or five days. He states the cure of a very severe case, from this application, in which the tumor had broken, and become very offensive. After pulverizing the glass, it should be *scronched* through very fine cambric or gauze. Perhaps some other stimulant would answer.

PHRENITIS, OR INFLAMMATION OF THE BRAIN.

The term staggers used to be applied to this disease, but it is only a symptom of this and other diseases. Phrenitis is produced by a determination of the blood to the brain.

Causes. Change from poor to high feeding and rich pastures, over-exertion in close, sultry weather, especially in fat, high-fed horses, lately accustomed to only a little labor. It sometimes results from other diseases, or a change of inflammation from one organ to another, it may suddenly leave the bowels, lungs, or other parts, and attack the brain. But it is usually caused by a diminution of the excretions which produce costiveness and induration of the contents of the intestine, and a strong flow of blood to the head.

Symptoms. Hanging of the head, dulness, watery eyes, reeling of the body, and sleepiness. While eating, the animal becomes lethargic, droops his head, with the tongue hanging out and saliva dribbling; and he will stagger and almost fall. If aroused, he stares around, and then slumbers again. If he falls, he will start up as though frightened, wander about, stagger and fall again.

This may continue some hours, or a day, and then the

scene changes; he is alive, his ears up and eyes glaring; he is constantly changing his posture, pawing and stamping. He has intervals of calmness for a short time. Again he is active; he whinnies, moans, dashes, plunges, bites and kicks, without object or consciousness. He exhausts himself, and then he is stupid and sleepy. And so he generally goes on, till he has ruptured a blood-vessel in the brain, or worn himself out by violence.

Remedy. Bleed profusely. Give a gallon of herb drink, made of mallows or other herbs. Give flax-seed tea to lubricate the bowels and prepare for physic. Back-rake, and give an exciting injection. In the course of six or ten hours, give a dose of physic. Then give mashes and feed sparingly, and keep in a dark stable.

Another. Make an incision in the forehead, in the form of a cross, two inches in extent, down to the bone; dissect up the angles, and introduce a tea-spoonful of cantharides; then close the skin, and confine it by stiches. In a few hours an inflammation takes place, a copious flow of mucus from the nose ensues, and the symptoms of the disease abate. A deep sore is formed, which should be cleansed daily by soap suds. In this case the cause should be removed by laxative food and gentle physic.

Another. Give physic and keep on light food. After an operation on the bowels, give the following fever drink: emetic tartar, one drachm; powdered digitalis, half a drachm; saltpetre, three drachms; mix, and give in a quart of gruel. When this medicine cannot be obtained, give, as a fever drink, two quarts of strong raspberry tea, or other soothing astringent tea, adding the saltpetre, or some other light diuretic dose, if convenient.

VERTIGO, MEGRIMS, OR FITS.

This is an inflammation of the brain in its mildest form. The horse appears well, but owing to heat, fulness of flesh, rather fast driving, or the effects of exertion after inaction, he is suddenly seized, stops, shakes his head, is giddy, looks around half unconscious. After

a few minutes' rest, he revives and goes on, but not so well as before. Sometimes, without any warning, he drops, lies a few minutes apparently insensible, then starts up and goes on again. Or he drops and struggles violently for a few minutes, then calmly rises and proceeds, though somewhat oppressed and weakened. Occasionally he drops and dies at once.

PREVENTION. Keep the horse in a good, healthy condition, and give moderate exercise. Be careful and not feed too high.

REMEDY. Give physic and fever drinks, with light diuretics, and feed lightly.

BIG HEAD.

Young horses are more liable to this disease than older ones. It does not seem to be contagious, yet when it is in a large stock of horses, many are liable to be affected before it can be eradicated. It is slow in its progress, both in its effects on those attacked, and in attacking others; in this way, it will sometimes remain on a place several years. Some say this disease is caused by blind teeth, which should be removed. English writers do not speak of this disease. It is unknown in the Northern States. It prevails in the South, and in some sections of the West. It is most prevalent in new countries, and usually attacks horses that run at large and live in the woods.

APPEARANCES AFTER DEATH. The bones of the head, particularly of the jaws, are heaved up and distended. The bone at the surface appears solid and of the usual consistence, but when broken open, the inner part is distended and not compact, exhibiting the appearance of dry honey-comb, or pumice-stone. The teeth also are affected, and have the same unnatural distention and want of solidity as the jaw bones. Some of the bones in other parts of the system are affected.

SYMPTOMS. The first appearance of the disease is an enlargement of the front of the head, between the eyes and nostrils. This unnatural bulk continues to increase, with greater or less rapidity, in different subjects. After

the horse has been some time affected, the under jaw also begins to exhibit a like growth and distention Sometimes it exceeds the other in increase. At an early period, some, and a later period, other subjects, begin to languish and lose their activity and strength; the joints grow stiff and unshapely; the back becomes weak and unelastic, until he dies, or is killed to terminate his sufferings.

Remedy. Numerous modes of treatment have been tried for this disorder, without success. The following has been attended with favorable results, when the disorder has been taken in season. Take a piece of bar iron, and have it formed into the shape of a chisel, about two inches wide. Let it be about as sharp as chisels or axes usually are before ground. Heat this in the fire until it is quite red. Search out a gristle or ligament which extends from near the eye to near the nostril. It is almost as large as a person's little finger. Apply the edge of the heated iron across this ligament, about midway between the eye and nostril, and sever it by burning entirely into the bone, on both sides.

Let the wound alone. The severed ligature should be prevented from reuniting again too readily, and the irritating and suppurating state of the wound may be advantageous; and having kept open the sore for some time, it will heal of itself.

If the disease has not advanced far, the head will gradually and slowly shrink to its former dimensions. If it has advanced further, the horse may be servicable, though the head may not regain its natural shape. It is said to be attended with no danger.

Another Remedy. One quart of hog's lard; one quart of tar; one pound of sulphur, or brimstone; put all together in a pot over a slow fire, and boil until the brimstone disappears. Then make a mop on a strong stick, and rub the horse's head, from the eyes to the nose, once a day, with this mixture, till it is all gone

RABIES, OR MADNESS.

This dreadful disease is produced by the bite of a mad dog, or by such dog licking the muzzle of a horse whose lips are galled by the bit.

Symptoms. The horse stops, looks round, staggers and falls. He will soon rise, proceed again, and again stagger and fall. After a while, he becomes violent and furious; stamping, biting, tearing, and endeavoring to demolish everything around him; acting with apparent consciousness and intent on mischief.

Unlike other domestic animals, even the dog, in which this disease originates, the horse, like the human being, generally has a dread of water, or hydrophobia; as the head is suddenly snatched from a pail of water, amidst drinking, and he trembles and sometimes falls to the ground, convulsed, at the sound of falling water.

There is no cure, but it may be prevented by cutting out the wound immediately after the bite, before the poison has entered the circulation, or by the application of lunar caustic, so as to destroy every part that is injured. It must reach to the very bottom of the wound It is dangerous to do anything with a horse when this malady controls him. [See page 277.]

THE HORSE DISEASE.

This term was given to an unusual and very fatal malady that prevailed among horses around the city of New York, particularly on Long Island, in the summer and early fall of 1846. It mostly affected those that were pastured. It seemed to be a congestive fever on the brain. The internal organs were free from inflammation.

Cause. It was supposed to be caused by miasma in the air, arising from the decomposition of vegetable and animal matter, which, taken into the lungs, vitiated the blood, or prevented the usual purifying effects of vital air.

Symptoms. These varied. In some cases, it com-

menced by the horse refusing food, and hanging down his head. He soon became stupid, and leaned against any object for support. In a few hours he fell, and in a day or two expired. In other cases, it commenced by weakness across the loins, and stiffness of the limbs, which gradually increased till the animal fell, generally to rise no more. In the latter case, the brain did not appear to be affected.

Remedy. Many medicines were tried, and mostly in vain. General bleeding usually hastened death; in some few cases, when it was attended to at a very early stage, it seemed to have a favorable effect. Moderate bleeding in the head was considered useful; after this operation, cold water was applied to the head, with apparent benefit. In some cases, it was thought that camphor, in others, calomel, had a good effect. But, in most cases, it proved fatal, in spite of medicines and treatment. About five hundred died.

LAMPAS.

A swelling of the bars of the mouth. Young horses are most subject to it. It will generally subside without medical treatment. A few mashes, with light physic, will generally relieve the animal. A few cuts across the bars, with a penknife, in the middle part, to avoid the principal artery and vein of the palate, will relieve the inflammation. Burning is unnecessarily cruel, and renders the part callous. Sometimes the lampas is caused by the tushes coming through the gums. In that case, lance the gums above the teeth.

BLACK TONGUE.

In the winter of 1834, an epidemic, under this name, prevailed extensively in Maine, among cattle and horses. The tongue swelled, turned dark, cracked, and the skin peeled off, and it was so sore that it was difficult for the animal to eat. Cooling laxatives, and washing the tongue in a decoction of white pine bark, had a good effect. The remedy used for cattle would doubtless be beneficial. [See this subject under the head, "Cattle."]

THE EARS.

The ears of horses are covered with a short down on the inside, mixed with large hairs, to prevent cold air, snow, sleet, rain, dust, and flies, from hurting the internal ear. Therefore, trimming this part is very injurious.

In hot weather, there is a species of flies that eat the inside of the ear till it is raw; they are exceedingly tormenting. To prevent this, apply some oil, lard, or other grease, to the inner part of the ear, once in a few weeks, in the warm season. Begin before the flies, else it will be difficult to touch the ears, from their tenderness.

FOUNDER.

This disease is caused by riding the horse until much heated and fatigued, and then allowing him to cool suddenly, by drinking freely of cold water, or standing in an exposed situation, or in a cold stable without covering; or, without sudden cooling, it may be produced by too bountiful feeding, and his swallowing his food greedily, while very warm and hungry.

Under such unfavorable circumstances, the poor animal, after resting, instead of being refreshed, is stiff and sore; his rest, food, and drink, being more destructive to health than constant action and abstinence. On the contrary, had he been allowed to cool gradually, and fed sparingly, he would have escaped injury.

Remedy. Take from the neck vein a gallon of blood, and give as a drink, in a quart of strong sassafras tea, a table spoonful of saltpetre, and a quarter of an ounce of assafœtida; withholding any drink for six hours; at the end of which, should he not be better, take half the quantity of blood, repeat the drink, offering him bran or oats scalded with sassafras tea, his drink being mixed with tea. His feet should be well cleaned, and filled with cow dung.

Another. As soon as your horse is foundered, bleed him in the neck in proportion to the severity of the case

In extreme cases, bleed him as long as he can stand. Then draw his head up, and with a spoon, lay salt back on his tongue, till he has swallowed one pint. Let him drink only moderately. Anoint his feet with spirits of turpentine, and he will soon be well. The founder pervades every part of the system. Bleeding arrests it in the blood, and the salt in the stomach and bowels. Attend to it immediately after the injury.

ANOTHER. Curry the horse with a sharp curry-comb, very briskly, against the hair, from his hoofs over the whole body, and with sufficient severity to draw blood slightly, in places; then jump on him, and run him some distance, and he will be relieved.

ANOTHER. If your horse founders over night, take him the next morning, and, by turns, set each hoof in a pint of boiling hot hog's lard, first cleaning the hoof; and better still, if the shoe be taken off. Have it boiling hot for each foot, and with a spoon, put it over the hoof as near as possible to the hair. He will be fit for use in three or four hours; so says a Kentuckian who had practised this mode of cure for fifty years without a single failure.

ANOTHER. Immediately on discovering the founder, give the horse about a pint of sun-flower seeds in his feed. This may aid in the cure; but it may not be sufficient alone.

H. Cole, in the Prairie Farmer, recommends, as a simple and *certain* cure, to bleed the horse freely in the neck, as soon as the founder is discovered, and as soon as practicable, place him in water about up to his belly; the colder the better, and let him stand two thirds of a day; or, if badly foundered, longer. This drives the founder from his feet and legs, and prevents its settling there.

EATING TOO MUCH GRAIN.

Some animals eat grain to excess when they get access to it, and it would often kill them, unless relieved. The grain absorbs the juices of the stomach, and with the heat becomes so swelled as to be in danger of bursting it. Or if this does not take place, the stomach may

.ose its action from over-fulness, and fever and other diseases ensue. Besides the distention from swelled grain, there may be gases from fermentation.

The general opinion among farmers has been, that after a creature has eaten too much grain, he must not drink, lest the water cause swelling of the grain. Some say he would better drink; and our opinion has been, that he would better drink moderately of salt water, or of an alkaline solution, as this will absorb the gas, and prevent swelling and fermentation, and at the same time supply moisture to the dry stomach.

On this contested point, we have obtained the opinion of Dr. Holmes, of the Maine Farmer, who makes the following judicious remarks: — "The injury arises from two causes, the swelling of the mass by absorption of the juices and fluids in the stomach, and gases arising from fermentation. The animal should drink moderately, for the grain, warmed and moistened by the stomach, will swell, and by absorbing all the juices in the stomach, is apt to bring on a fever. A small portion of water will relieve the dryness in the stomach, and put the mass of grain in a condition to move out of the system."

Remedies. Give drink moderately, and let it include a good dose of lime or chloride of lime, or a lye of wood ashes. If the case be severe, back-rake, and give injections — exciting ones, if obstinate constipation require it. Soon after giving the alkaline solution, give a pint of any kind of oil, or melted lard. A little gentle exercise may be useful. Ardent spirit of any kind is good, or any warm stimulant in a small compass, as Cayenne pepper or hot drops, as it checks fermentation, and warms and excites the stomach to action. For some time after, feed lightly, and treat kindly, for the stomach will be weak and tender.

HIDE-BOUND.

This often results from poor keeping and bad usage; sometimes from surfeit. The animal grows poor, his skin becomes dry and rigid, and seems to adhere to his

bones, and sometimes small boils break out on his back. It is generally only a symptom of disease, particularly of the digestive organs.

TREATMENT. Feed liberally, and give bran mashes, roots, or green food, to keep the bowels open; work moderately, oil the skin, and curry often, but not harshly, as the bones are too prominent for such an operation. This, with good usage, will generally cure, when the complaint is owing to poverty and harshness.

But if it does not yield to the above treatment, the digestive organs are probably disordered, and medicine may be necessary. Give alternative medicines: — two drachms of levigated antimony, the first night; three drachms of saltpetre the second night; and four drachms of sulphur the third night, in bran mashes.

The bran will keep the bowels loose; the antimony and sulphur are fine for the skin; the sulphur for the bowels, and the saltpetre for the urine. If the horse can be spared from labor, gentle physic will be beneficial. Rub him well, and use warm clothing, if the weather be cool.

LICE.

See this subject under the head "Hens." The smaller kind of lice that infest hens often get on horses, when the hen-roost is near them. They multiply rapidly, and notwithstanding their small size, they become a formidable enemy, tormenting the poor animal almost to death. He rubs and scratches, tearing off the hair and skin, but all in vain; they continue to tease and bite. They are difficult to destroy, and some powerful means that are recommended would sooner kill the horse than the lice, as they are more hardy, and will long endure what would kill the horse instantly.

Mr. Albert Todd, of Smithfield, R. I. had a horse sadly afflicted with lice, from having the hen-roost near him. As he knew not what ailed him, they became an awful scourge before he discovered the cause of the evil. After he learned the cause, he tried tobacco, soap suds, and oil, but in vain; he then soaked him all over in

new rum, and this destroyed them. In such cases, the litter should be removed beyond the reach of any animals, and the stall and furniture whitewashed, with a liberal portion of salt in the wash; and the harness should be carried off, and brushed, washed or oiled. For these lice will live long without food, and then revive and increase. We have kept them alive nearly a week in a phial, without food.

MOULTING, OR SHEDDING THE HAIR.

This is not a disease, but a condition that requires attention in the management of the horse. It takes place in the spring and fall,—more thoroughly or suddenly in the spring, and then the animal is more affected by it. It produces indisposition to a moderate extent; sometimes a slight fever, as the vital power, which, in health, is equally distributed through the whole system, is, in this condition, determined to the skin, and employed in the reproduction of hair. Consequently, there is langor, and less capacity for labor.

At these seasons, give cooling and loosening food; manage carefully, clothe well, and let the labor be less than usual. More than common attention to currying and rubbing is necessary while the moulting process is going on, as it will remove the old hair and promote the growth of the new.

ABORTION.

Abortion frequently happens to mares. It often arises from over-exertion during the latter period of pregnancy. They are also liable to various accidents in the pasture, which cause them to slip their foals; such as kicks, tumbling into holes and ditches, leaping over fences, &c. Stinting the mare in the quantity of her food, or food of a bad quality, is a cause of abortion. On the contrary, if she be fed high and not worked at all, there is equal danger of miscarriage, by high condition and idleness, causing inflammation and other disorders. Therefore avoid extremes and when the beast is near

her time, put her in a suitable pasture by herself. This subject is treated of more fully under the head "Cattle."

WOUNDS AND BRUISES.

One who has much experience confidently recommends the following treatment: Dissolve saltpetre in warm water, in such proportions as to be moderately strong to the taste, and add blue stone, blue vitriol, (*sulphate of copper,*) until the solution is slightly tinged. Use this, and nothing else, for a week, two or three times a day.

It purifies the wound, destroys proud flesh, produces granulations, and heals the worst wounds in a short time. It is good for a kick, and is not liable to leave a scar. It will generally do well without any covering. It protects from flies, and as the skin will approximate as the wound heals, under this treatment, there is not so much need of sewing up wounds.

ANOTHER MODE. Wash the wound, morning and night, in warm soap suds, and anoint immediately with whale oil. This purifies and heals the wound as fast as desirable for soundness, protects it from cold and flies, and the hair is replaced of the natural color.

ANOTHER FOR FLESH WOUNDS. Steep Life of Man root in chamber lye, boil it down one half, and wash the wound with it several times a day. It is said to be very effectual. [See Wounds, page 56.]

CRAMP, OR DRAWING OF THE NERVES.

CAUSE. Taking cold after hard labor and sweating. The excretions being suddenly diminished brings on spasmodic and convulsive symptoms. Every nerve seems contracted to overthrow its antagonist and dismember the ungovernable body. The eyes are contorted, and generally nothing but the white appears.

REMEDY. Sweat the horse, by taking a large pot filled with mayweed and tansy, and when boiled, place it under his belly, and cover him with a large rug or coverlet, to keep the steam confined to his body. A little

before the steaming, give him sixteen grains of opium in half a pint of wine. Keep him covered for a few days, and give him warm water, and be careful that the cold be not repeated.

If opium be not at hand, give some warm drink, such as ginger and water, peppermint or pennyroyal tea, adding two tea-spoonfuls of pulverized Cayenne pepper. This will greatly promote the perspiration, and warm the whole system. Hot drops are also very good as a warming medicine. [See page 49.]

CASTRATION.

If horses are constantly worked, so as to be no trouble, they are better for being entire, as they will be stronger and endure more hardship. On this account, many that are kept almost constantly in harness are not altered, and they are perfectly kind and docile. But as most horses are sometimes idle and run out with others, it is a general custom to castrate them.

This operation, as with calves, lambs and pigs, could be done with the least trouble, injury or risk, when the colt is only a few months old. But as the form of the neck and shoulders are materially improved by his remaining perfect, he is not generally castrated till after he is a year old.

If the fore quarters are then large and full, the sooner it is done the better; but if they are thin and weak, he should remain six months longer. Many do not castrate the colt till he is two years old. The operation should be performed in mild weather, and the patient should be prepared by a dose of physic.

Many new modes of emasculation have been recommended, — such as turning the testicles, cording, applying the clams, &c., — but the old mode of cutting is generally preferred; and if it be properly done, under favorable circumstances, it generally, or almost universally, succeeds.

After carefully casting the colt the operator should examine the scrotum and see if the testicles have come down thoroughly, so that he can grasp them firmly

They may not have come down well. If there is any prospect of a difficulty in retaining them in the grasp, he should pull them down as low as he can without violence, and place a pair of clams above them.

He grasps the testicle, pushes it to the bottom of the bag, and then makes the bag tight over it; then with one incision, from before backwards, he cuts along the whole extent of the lower edge of the testicle; he cuts through the scrotum, the dartos muscle, and the tunica vaginalis, and the testicle slips out. Some make the incision with a red-hot firing iron, but this is unnecessarily painful, and the wound will not heal so soon. There may be some cases in which it heals too soon, while matter is in the scrotum; but these cases are rare.

The operator must now seize the testicle, hold it steadily, not draw it violently, humoring the struggles of the animal, and when he is still, draw it out a little further, and place the clams upon the cord, having first wound a little tow around them. The vas deferens, which is continued from the lower part of the testicle, should be divided, which will save the colt much unnecessary pain.

He then settles in his mind where he will divide the cord, so as not to leave it so long as to protrude out of the scrotum, nor so short as to be difficult to seize in case of bleeding. The clams are then closed, and fastened sufficiently tight to stop the blood, but not so hard as to bruise the cord. The cord is now divided.

Some cut the cord with a knife, and sear the end to prevent bleeding, but the difficulty is that bleeding will sometimes occur after this precaution. The better way is to draw a firing iron, with a sharp edge, rapidly and repeatedly, yet lightly, across the cord, and not wholly in the same line, until it is divided. The vessels will then be more securely closed, and bleeding will seldom follow. The clams should be a little loosened to see if bleeding is stopped. If only a little blood oozes out, apply the firing iron again. This is a nice point, as the application should be just sufficient to accomplish the intended purpose; for many of the colts that are lost die of inflammation from needless severity in the application of the hot iron.

Proceed in the same manner with the other testicle, and the operation will be completed. Cleanse the part with cold water, as nothing is better. No balsam or salve need be applied, nor is it generally necessary during the healing of the wound. At first he should be kept up in a pen, as stirring a little will cause the pus and other fluids to run out, and prevent swelling and inflammation. He may be walked out daily for a quarter of an hour. To turn him out, exposed to the flies and cool nights, is cruel and dangerous.

But little attention will be necessary afterwards. There will often be considerable swelling, and sometimes extending beyond the scrotum along the belly. But if there be a healthy discharge of pus on the third day, there will be no danger, and the swelling will gradually subside. Whether there is swelling or not, if there be no discharge of pus, the wound should be opened a little with the fingers, that any pus pent up in the bag may escape. If there be great swelling, foment the parts long and often. A strong decoction of raspberry leaves, or other astringent, will be good for this purpose. In case fever attend, give gentle physic, and light food, such as bran mashes, &c.

SALIVATION, OR SLOBBERS.

Causes. The food is doubtless the cause, whether it be green or dry, as is shown by experiments in changing food. Some have attributed salivation to the second crop of clover, but from very nice experiments that have been made, it is evident that clover has no such effect, unless the seed be a cause. There are several grasses, weeds, and other plants, that will cause salivation. Lobelia will cause it when eaten by horses; but in the pasture, they generally, if not universally, avoid it; but when mixed with hay, horses will eat lobelia, and it will produce slobbers, as experiments have plainly shown. Some say that clover seed will cause salivation; hence this disease from eating ripe clover.

The principal cause of salivation is doubtless spurge (*Euphorbia maculata,*) which is generally found in a see

ond crop of clover; and a later variety (*hypericifolia.*) It comes forward, flowers, and ripens at the same time as the second crop, and it is gathered with clover seed. In this way, it may be diffused all over the country, and it is found in most parts of the United States.

All the plants of the genus Euphorbia contain a very acrid juice. [Some of them stand at the head of vegetable poisons.] It has the greatest effect in the green state, and is most effective when in flower, which is in July and August.

Symptoms. They are very apparent. A profuse discharge of saliva from the mouth, to the great annoyance of man and beast. It doubtless weakens the animal very much.

Remedies. Change the pasture, or the fodder. Take a horse that is salivated, from grass, and feed him on pure hay, and the salivation will be stopped in one night.

Feed with cabbage leaves; and if they be not at hand, use turnip tops, radishes, mustard, or other crumiferous plants. Mix, occasionally, a table spoonful of sulphur with the salt that is given to the horse, and give salt freely.

FISTULA.

This disease may generally be attributed to carelessness. If the saddle has not been properly champered, or the padding has shifted so that the saddle presses on the edge of the withers, swellings and sores will be produced, which, in bad cases, may run to ulcers of the same kind as those of poll evil. If the sinuses penetrate between the shoulder and the ribs, it is even more serious than poll evil, and the seton must pass through the very deepest of them. In many respects, this disorder is similar to poll evil, and the treatment should be similar.

Another Remedy. If it has broken, or has been lanced, and runs, make a wash of elder, (*Sambucus canadensis,*) wild cherry and sassafras root, equal parts, boiled After washing, apply salæratus to the sore.

SWEENEY.

Sweeney is the name given to a certain disease in which there is a wasting of the flesh in the bone, called the *scapula* [shoulder-blade] of the horse. It is generally occasioned by a sprain of one of the joints of the leg, causing an interruption of the circulation of the fluids which nourish the muscles [flesh] of that part of the shoulder — hence the wasting of the flesh occurs. Farmers call the disease sweeney, but it is not found under that name in the books.

The remedy is simple. In the centre of the wasted part, take hold of the skin, and pull or lift it up with the thumb and finger, and with a sharp knife, cut off the piece thus lifted up, so as to remove entirely a piece of the skin about an inch in diameter; then dress the spot with a suppurating salve, to make it run matter for two weeks; then let it heal. The cure depends upon the inflammation occasioned by the wound and the salve; this occasions an increased flow of nourishment to the wasted part.

We would suggest whether the insertion of a rowel would not answer the purpose more effectually, and with less trouble, than removing a piece of the skin, and applying suppurating salve.

Another Remedy. "Take half a pint of grease, tried from old rusty bacon; half an ounce gum camphor, shaved fine; four or five red peppers; simmer all together till thoroughly mixed. Apply this every other morning to the affected shoulder, rubbing it briskly with a smooth stone until it becomes quite hot. Pulling up the skin two or three times a day, where the flesh is wasted will expedite the cure."

GALLED BACK.

Remedy. White lead moistened with milk is an excellent remedy. Keating, in his expedition to the source of St. Peter's River, found this the most successful appli-

cation. When milk cannot be had, sweet oil may be substituted.

Another. Gather a quantity of smart weed, (arse-smart,) which generally grows in moist land around stables; bruise it well, and put it into an iron vessel, in the corner of the stable; cover it with chamber lye, and wash the galled places whenever the horse enters or leaves the stable, or oftener, if necessary. A cure will be effected. If badly galled, bruise some of the leaves, and lay on. To prevent galling, wash daily the parts most exposed to injury.

Another. If the skin is worn off the back, and the sores are swelled, bathe it with hot urine, or with warm salt and water; this will disperse the swelling. If you wish to dry up the sore, powder chalk, or old shoes burnt, and cover the back with it. If the back is full of hard lumps or saddle boils, bleed him freely in the mouth, which will serve him as a dose of physic; then wash his back often in hot rum and vinegar.

THE SHEATH AND PENIS.

Sometimes the sheath of the horse becomes foul from dust and perspiration, which causes irritation and inflammation. Wash it thoroughly, internally, with soap suds, and remove all the foul matter. When well cleansed and dry, anoint it with some soothing ointment or liniment. Lard, or oil of any kind, will answer. If there be not much inflammation, the washing alone may be sufficient. If there be much inflammation, after washing, foment it, externally and internally, with some astringent. Sometimes, at the close of a severe illness, the sheath becomes suddenly inflamed. Give gentle physic and mild diuretics, and foment the inflamed parts with astringent liquor.

If the sheath be not occasionally examined and cleansed, filth may collect and remain there long, causing excoriations and ulcers, eating deeply into the parts, and producing a mass of disease on the glans of the penis, so that amputation becomes necessary. Sometimes masses of fungus, weighing several pounds, will

cover the glans. They cannot be successfully removed with the knife or cautery, as they will sprout again. Amputation of the penis is the only remedy; which is neither difficult nor dangerous.

Turn back the sheath, and draw out the penis as far as possible, and then cut it off as far below the diseased part as may be deemed necessary. The remaining portion will be retracted within the sheath. Little bleeding will generally follow; excepting a slight flow of blood for a few days, in the passing of urine. The orifice of the urethra is kept open by the urine, and no unpleasant circumstances usually follow from this operation.

SPRING HALT.

Spring halt, or string halt, is a kind of lameness peculiar to the hind quarters of a horse, which causes a sudden jerking of the legs upwards in his going. When it seizes the outside muscles, the horse straddles and throws his legs outward. When the inside muscles are affected, his legs are twitched up to his belly. It is in one or in both legs. The cure is difficult. Rubbing and fermentations are recommended, with moderate exercise daily.

STIFLE.

Cause. It is caused by the dislocation or slip of a small bone, about as big and as long as a man's finger, at the stifle joint, above the inside bend of the hough or gambrel, which is much the same as the knee-pan in man.

Symptoms. Lead the horse over bars or other impediments, one and a half or two feet high, and he will drag a stifled leg over, being unable to raise it up, and step over.

Remedy. If the stifle is not slipped out of place, but only strained, it may be cured by bathing it in a liniment made of three parts of brandy and one of the oil of spike, heated in by a chafing dish of coals. This will contract and strengthen the ligament, and if the lame

ness is recent, it will be likely to cure. But if the stifle is out of place, fasten a strong rope or chain round the foot-lock of the lame leg, and let a strong man hold it; then move the horse directly forward, while the rope is held fast by the man behind, pulling the rope, so as to occasion the leg to be extended back as far as it can be drawn. Let this be done three or four times before the rope is taken off. Be careful and pull the leg directly back behind, for if turned on one side, the leg may be injured. It is said that this treatment never fails; but if the stifle has been of long standing, the operation should be repeated in a few days. This restores the bone, and the application of astringent medicines, like the liniment just named, will have a tendency to keep it in its place.

Another. If the stifle is dislocated, make a stifle shoe, three inches high, using a common shoe for the base; put this on the well foot, that the horse may stand four or five days on the lame one; that will keep the joint in its place, and in the mean time bathe the joint with the liniment above mentioned. The stifle shoe is preferable to strapping the well leg, as it hinders circulation, takes off the hair, and often lames it.

Another. "A handful of sumach bark, and a handful of white oak bark, boiled in a gallon of water, down to two quarts; bathe the stifle with this solution twice a day four days; then put on a salve made of the white of an egg and rosin, and bathe the same in, with a hot shovel, two or three times, and the horse is cured."

Another. Take one gallon of urine, and put therein a small handful of junk tobacco; boil down to one quart; then add two ounces of the oil of spike, one ounce of the oil of amber, two spoonfuls of spirits of turpentine, and two spoonfuls of honey. Put it into a jug, and cork it tight for use.

Process of Application. Rub the stifle bone hard with the mixture, fifteen or twenty minutes; then dry it in thoroughly with a red-hot fire shovel; then ride the horse forth and back one hundred rods. Repeat the above two or three times, and the cure will be effected.

SPLENT.

Splents, strictly speaking, are bo: substances interposed between the larger and smaller bones of the leg. But horsemen generally call any bony tumor along the side of the leg, a splent. They are caused by early and over work, and external violence, and are most common to young horses. The growth of the splent is attended with heat, tenderness and pain, and some lameness. When they have become grown, and the other parts around them have become accommodated to them, they do no material injury, though unsightly, unless they interfere with the action of any joint. This disease is most common to the fore legs.

Remedy. If they produce lameness, or are in situations where they are likely to, cut off the hair arounc them; put on a smart blistering plaster, to be kept on three days; chafe the part strongly with a tincture of flies, and once a day rub in opodeldoc, with one quarter spirits of turpentine, unless this substance is in the opodeldoc.

Another. Rub on well, for four days, a little mercu rial ointment; or, better still, a compound of iodine and mercurial ointment. Then wash cleanly, and apply a blister.

Blister. Mix four drachms of cantharides with sweet oil, to the consistence of molasses, and rub it on with the hand, five or ten minutes.

SPAVINS.

Bone Spavin is similar to splent, excepting it is confined to the joints, and common to the hind legs. Some call all bony excrescences spavins when on the joints, and splents when on other parts of the legs. The bone spavin, definitely considered, is a bony enlargement at the upper end of the shank bone, inside the hock joint, or a little below it. It belongs to the hind leg only.

At the seat of this disorder, the leg is composed of three bones, fitting into one common cavity at the hock

yet possess separate motions to give elasticity to the animal's tread, and assist him in progression. By mounting the colt while too young to bear much weight, and pushing him too hard at work, these bones are strained asunder, inflammation ensues, and a spavin is thrown out.

Remedy. Blister the part affected, first shaving off the hair.

Another. Two table spoonfuls of melted lard; one table spoonful cantharides, made fine; a lump of corrosive sublimate, as big as a pea, made fine; all melted together, and applied to the callous, once a day till used up. This quantity for one leg. It will make a sore and weaken the joint while applied, but be not alarmed.

Another. Take six ounces of oil origanum, two ounces of camphor, two ounces mercurial ointment; mix them well together, and rub the place affected two or three times a day, keeping the horse dry. This is said to be a good remedy from *actual experiment*. It is also good for ring-bone.

Bog Spavin owes its origin to hard work in early life. It commonly comes in the ham, and is caused by the joint-oil of the hough issuing into the membrane that surrounds it, and, stagnating under the vein, causes it to swell. Prick the swelling, but take special care and not injure the nervous cord, as this may bring on the locked jaw. Upon opening the swelling, you will find a gelatinous humor to issue from it. Now apply a turnip poultice for a few days, to draw out the humors, and then strengthen the part by bathing it in good brandy.

Blood Spavin is caused by a vein being ruptured, the blood extravasates, and forms a protuberance.

The following remedies are good for bog spavin, or blood spavin:

Take a strong mixture of copperas and vinegar, with which rub the parts affected, keeping the horse dry, and stirring him only enough for exercise.

Take about a pailful of urine, into which throw a quantity (the more the better) of old rusty iron; put the vessel near a fire, and let it stand three or four days stirring it occasionally, when it will be fit for use

Apply this mixture twice a day; and in all cases it will soon effect a radical cure, or prove highly beneficial.

SWELLED LEGS, OR WEED.

This complaint is frequent and troublesome. The causes are various and difficult to determine. Young horses are most subject to this disease, especially if high fed on being taken from grass. It is more common and more severe in the hind legs. It frequently comes on very suddenly. Sometimes it is only the shifting of an inflammation from the lungs, intestines, or other parts. Sometimes a general fever attends it, the pulse quickens, the mouth is hot, and the horse ceases to eat.

Remedy. Foment the legs with warm water, give a good dose of physic, and follow it by a diuretic medicine. In very severe cases, bleed freely. The legs should be well rubbed and slightly bandaged, and gentle exercise used. The legs of horses that are over worked frequently swell, without much pain, on standing a day or two in the stable. The legs of some horses swell every night. This is owing to debility, either general, or of the part. It may be owing to over work or high keeping.

Remedy. Give mild physic and diuretics; use regular exercise, and rubbing, and bandages around the legs. Decrease the quantity of food a little, and give mashes, and green food, if in the season. Attend to the general management of the horse, to promote his health.

RING-BONE.

This is an ossification or bony excrescence on the front of the smaller pastern bone, just above the hoof, and below the fetlock joint; generally it is not very injurious, but sometimes the same affection on the lower part of the larger pastern, at the joint, causes much lameness.

Causes. Colts that are kept on stable floors that are cleaned daily, and not littered, are subject to this disease. Low keeping, by weakening the joints, has a tendency

to produce it. In young horses, it is often caused by strains, in being driven too hard; and by running in pastures, and leaping fences.

Symptoms. Lameness is sometimes the first intimation that we have of ring-bone, which may be ascertained by passing the hand down over the part affected.

A Remedy is difficult, but something may be done by way of preservation and relief, and if the ossification is not at the joint, it will not be a serious injury. As soon as the evil is discovered, foment the part frequently and apply the following liniament. One quart of vinegar, two ounces of salt, and one quart of hot drops.

Another. One pint tincture of lobelia, one pint tincture of Cayenne pepper, and four drachms oil of origanum. Beat up the last in a small quantity of alcohol.

Another. Clean and dry the part affected. Then rub on it, well into the hair, some good common house soap, and dry it in with a hot iron, but not so hot as to burn. Try this three mornings, and if a cure be not effected, repeat it. It is perfectly safe.

SCRATCHES, OR SELENDERS.

A disorder between the hinder pastern joints and hoofs, consisting of cracks, soreness, with suppuration. It is most troublesome in spring, while the roads are muddy, which obstructs the perspiration of the parts, together with snow-water, which is very unfavorable.

Remedy. As a preventive or cure, cut off the hair close, and wash the legs in strong soap-suds or urine. Washing in warm vinegar, saturated with salt, will be an additional advantage. In severe cases, apply for a few days a turnip poultice, with a small quantity of hog's lard. In inveterate cases, a run at grass may be the only remedy.

Another. Wash the legs in warm, strong soap-suds, and then in beef brine.

Another. With warm soap-suds wash the part affected, and with a cob or other rough substance rub

off all scabs; hen apply oil or hog's lard just so as to moisten the skin; then take a fine powder of hemlock bark, and cover the parts well with it; a few applications will effect a cure.

DISEASES OF THE FEET.

Brittleness of Hoof is a disease arising from keeping the hoof too dry; though it is a natural defect in some horses. It prevails most in hot, dry weather, and is a serious inconvenience. The hoofs chip away at every shoeing, until at last there is scarcely nail-hold, and there is danger of pricking the horse. For this complaint, *stopping* is commonly used. The best stopping is cow dung, with a small portion of clay to give it consistency and tenacity. Apply it to the soles of the feet when not at work. But the following liniment is preferred. Oil or spirits of tar, one pint; common fish oil, one quart; mix them together. When the horse comes from work, cleanse the feet, and rub this liniment over the whole crust and sole. Brittleness in the hoof would be prevented, in some measure, by the horse standing on the ground instead of a plank floor.

Sand Crack is a longitudinal crack in the hoof, the predisposing cause of which is brittleness of hoof. It is most common on the inner quarter of the fore foot, that part being rather weak, and liable to much stress and pressure. But in the hind foot it is the most frequent at the toe, for there is the principal stress in drawing.

The slightest appearance of sand crack should be attended to. It begins from without, and penetrates inwardly, and may be arrested in its progress, when superficial. Rasp the hoof; if done in season, the crack may be rasped out. If it proves to be deep, and yet no lameness, the foot should not be weakened by cutting to the bottom of the fissure, but a line should be deeply drawn, with a sharp firing iron, above and below it, to prevent its spreading.

If lameness attend sand crack, the fissure has penetrated hrough the horn to the sensible parts, and either gravel has insinuated itself, and is giving pain by its

pressure, or a portion of the sensible part beneath has protruded itself into the crack.

The crack must be searched to the bottom, the sides must be pared off a little, and then, with a very small drawing knife, the fissure must be opened and examined. When the dirt or gravel is removed, a piece of tow, dipped in balsam, should be put into the crack, the foot immersed in a linseed poultice for a few days, and a stimulating liniment rubbed on the coronet, to encourage the growth of horn.

Split Hoof is sometimes occasioned by corking when the travelling is bad, and the inconvenience of a horse lying idle several months is very great. A case is reported of two horses that had split hoofs from corking, which were kept constantly in the team, without any signs of lameness. The blacksmith bored the hoof in two places on each side the split, and then passed nails through the holes, and clenched them tightly.

On this point, Sylvester Staftor, of Thetford, remarks as follows, in the Boston Cultivator: — "I had a horse that had a split hoof, caused by being corked the winter previous; it had become a cloven hoof on the outer part, and the horse was very lame. I met one of my neighbors on the road, and he observed that my horse was lame; he took his jack-knife and cut through the soft *hough*, a little above the crack, a cross slit, extending three fourths of an inch each way. I kept it soft with stimulating ointments, and as soon as a new hoof could grow, it was as good as any other. Rattlesnake's oil is one of the best ointments."

To Make the Hoofs Tough. Wash them frequently in brine, and turn up the feet, and turn brine upon the bottoms, and soak them a few minutes. This will make the feet tough, and prevent brittleness in the hoof. A correspondent of the Western Farmer and Gardener, tried this, on the recommendation of an old Kentuckian teamster, and it relieved his horse from stiffness in the joints, and his hard, brittle hoofs became soft and tough, and he drove him fourteen hundred miles without further trouble.

Some regard water as the best application to keep the

hoof soft and in good condition. It will penetrate the hoof better than oil, and other oleaginous preparations for this purpose. In warm wea her, moisten the feet often in water.

Hoof-Bound. The hoofs are dry and hard, and contracted at the top so as to pinch the quick, and prevent a free circulation.

Remedy. Keep the hoof cool and moist, as a preventive; and for a cure, open the hoof a little at the edge of the hair, that it may spread. Then grease it daily with any soft grease, such as that of woodchucks, skunks, dogs, or geese.

Wash for the Hoofs. The following wash is excellent for softening and toughening the hoofs: — Spirits of turpentine, four ounces; tar, four ounces; whale oil, eight ounces; mix, and brush over the hoofs often.

THRUSH.

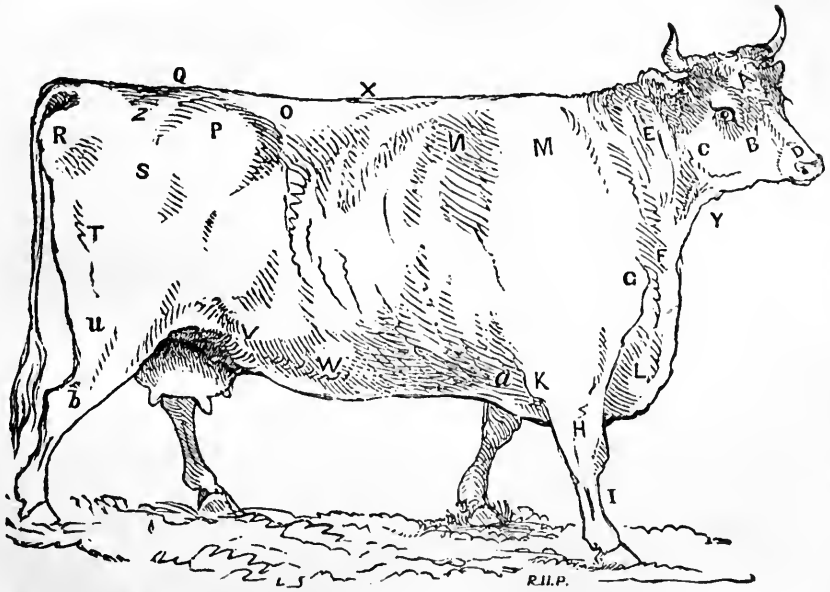
This is a disease of the frog of the foot. At first there is a discharge from the cleft of this protuberance. It is caused by frequent, long continued, and extensive application of moisture. A plethoric state of the body is a predisposing cause; but too much water is the principal cause.

It is sometimes produced by standing constantly in moist dung. *Stopping*, or frequent wetting the feet in water, as a remedy for brittle hoofs, when carried to the extreme, will produce thrush.

If thrush be neglected, it spreads, affecting the whole foot. The horn becomes ragged and irregular; the frog shrinks, and the foot contracts. The horse is disposed to go on his toes to favor his heels. But generally, he shows no lameness until the disease is much advanced, except when the frog comes on a stone, or is pressed in rough or deep ground.

Preventive. To prevent thrush in feet predisposed to it, keep the frog dry; and if the sole needs moisture, stopping may be applied, first covering the frog in pitch.

Remedy. Clean thoroughly the cleft of the frog, and all the moist crevices, and fill them with pledgets of tow dipped in warm tar, every day, and keep the foot dry.



EXPLANATIONS.

A. Forehead.
B. Face.
C. Cheek.
D. Muzzle.
E. Neck.
F. Neck vein.
G. Shoulder point.
H. Arm.
I. Shank.
K. Elbow.
L. Brisket, or breast.
M. Shoulder.
N. Crops.
O. Loin.
P. Hips, hocks, or huckles.
Q. Crupper bone.
R. Rump, or pin bone.
S. Round bone, or whirl.
T. Buttock.
U. Thigh, or gaskit.
V. Flank.
W. Plates.
X. Back, or chine.
Y. Throat.
Z. Hind quarter.
a. Chest.
b. Gambril, or hock.

NEAT CATTLE.

The lettered engraving on the left, with the explanation, shows the terms usually used in designating the principal external points and parts of cattle. The figure represents the short-horned Durham breed, remarkable for depth in the breast and large fore quarters. It is also distinguished for large size and early maturity. It differs materially from the following description, in regard to the size of the fore and hind quarters.

MARKS OF A GOOD MILCH COW.

John Brooks, Esq., of Princeton, who pays particular attention to raising cows, selecting such calves as have the best marks for this purpose, has favored us with the following description of a *good, native, milch Cow:*

"Head and face rather long; muzzle small; eyes prominent, bright, and mild; forehead, between the horns, narrow; wide between the eyes; horns rather long, small, oval shaped, and wax colored; smaller near the head than three or four inches from it; neck slim and flat, not approaching to round; on leaving the shoulders, the neck should fall a little below the line of the back; straight on the back; wide in the loin; the outlines of the loin should be nearly parallel; thigh should be thin; hind legs straight and small, standing wide apart; in walking, the cow should carry her hind legs straight forward, not sling them out, describing the segment of a circle; fore leg, above the knee, should be rather large; below the knee, small, approaching to round; foot rather large than small, but round, and of a dark wax color; breast wide, brisket projecting well forward; milk veins large; deep in the flank; large hind quarters, and small fore quarters; bag, when empty, small and skinny, not fleshy, running well forward on to the belly; teats middling size, neither large nor small, but rather long and elastic; color of teats reddish brown, never white; hair upon the bag soft, short and silky, growing or

pointing on the hind part upward, except if she be a very good cow, she may have an oval spot of hair growing downward, a little above each hind teat; if not quite so good, one spot above the left hind teat; if a little poorer still, one spot above the right hind teat; hair thick, short and glossy; color red, dun, or brindle, with a light, golden colored ring around the eyes and muzzle."

MARKS OF A GOOD WORKING OX.

Mr. Asa G. Sheldon, of Wilmington, who has great experience in cattle, particularly in working oxen, and is regarded as the best authority, gives the following:

"Long head, broad and oval between the eyes; the eye full, keen and pleasant. Such marks denote ability to receive instruction and a readiness to obey. The short-faced ox starts quick at the whip, and soon forgets it. The black-eyed ox is inclined to run away. An ox with very large horns near the head is apt to be lazy, and he cannot endure heat well.

"Forward legs straight; toes straight forward; hoof broad, not piked; the distance short between the ankle and knee. These properties enable an ox to travel on pavements and hard ground. If the ox toes out, the strain comes on the inside claw, and when travelling on a hard road, he will be lame at the joint between the hoof and the hair. When the toes turn out, the knees bend in. An ox with crooked knees is apt to become lame by holding heavy loads down hill.

"Breast full; straight on the back; round ribs, projecting out as wide as the hip bones. These are indications of strength and a good constitution."

TO ASCERTAIN THE AGE OF CATTLE.

By their Teeth. The calf is usually born with two fore or cutting teeth, and at a month old the whole eight are cut. The age is then guessed at by the wearing down of these teeth, until the calf is eight months old, when they begin to become narrower and smaller. At eight months the two centre teeth are smaller than the

rest; and from that time until eighteen months, the others gradually diminish, until the whole are considerably lessened, and stand apart from each other.

At two years old, the two middle teeth are pushed out, and succeeded by two permanent ones; at three, there are four permanent teeth; six at four years; and all the eight at five, when the animal is said to be full-mouthed; but he is not actually so until six years old, when all the eight are level.

A good judge of cattle will generally determine the age with considerable accuracy for many years after that. From six to nine, he will be guided by the wearing down of the teeth; and after that, by the diminution in their bulk, as in the milk teeth. At nine, the two middle fore teeth are evidently smaller and narrower than the rest; at ten, the two next are so; and so on until twelve, when, as in the steer of two years old, the teeth again begin to stand singularly apart from each other.

By their Horns. The surface of the horn continues nearly smooth until the expiration of the second year, when a wrinkle or circle of thicker horn begins to be formed around the base. This is fully completed in a twelvemonth, and another ring then begins to appear, so that if the perfect rings or circles are counted, and two added to them, the age of the beast is ascertained.

These rings, however, are not always clear and distinct, and it is very easy to remove one or two of them with a rasp, at least to the unpractised eye, when the animal begins to be too old for the market. In addition to this, a well-known fact should be stated; that if a heifer has a calf when about two years old, the first ring is formed about a twelvemonth before the usual time, and, consequently, she would always appear to be, reckoning by her horns, a year older than she really is

TRAINING.

We have already treated on this subject, under "Animals" and "Horses." The remarks on taming and training horses, in their leading principles, are applicable to cattle, showing the importance of subduing by gentleness rather than by harshness and force; they also show the great importance of exercising *common sense* in this business.

We have found, from experience and observation, that by far the best time to train steers is when they are calves, the first winter. A person can then manage them with ease, and put them under good discipline, and they will never forget it. When a boy, we trained calves the first winter, so that they were completely handy, and would take as large a load for their size as a pair of oxen. Let this be done by a person of discretion, and not allow boys who were *never trained* themselves to do this by way of a frolic.

In the neighborhood where we resided, a pair of calves was raised on a small farm, where some seven or eight tons of hay were cut, and a few acres of land tilled, and no oxen kept. The first winter, these calves were worked by boys of moderation and good judgment. They hauled all the wood for the family, which was no small amount, as it was for an old-fashioned fireplace. They also carried grain to mill, about four miles. The next spring, they were furnished with cart and wheels suited to their size, and hauled out the manure, hauled in the hay and other crops, hauled fencing, &c., and from that time did most of the work on the farm; they proved to be a superior pair of oxen, and at seven years of age, they were sold at a high price, considerably above the value of any other pair of oxen in the vicinity.

We should no more think of allowing cattle and horses to go three or four years without training, than allowing children to run wild, wayward, and ignorant, until fifteen or sixteen years old, before being trained or educated. *Illustration.*—An old gentleman threatened his son a big boy, for disobedien e. "Would you

once bend that tree, yonder?" said the son to the father. "Yes, with the greatest ease." "Can you bend it now?" "No, I cannot move it." "Neither can you move this chap!" retorted the son.

On this subject, Mr. Sheldon remarks, that the best pair of oxen he ever knew were trained before they were six months old, and that cattle that are trained early are worth twenty-five per cent. more for hard labor than those that are grown before they are broken. In learning cattle to back, he strikes them on the nose with the hands, instead of a stick.

If steers or oxen are sullen, and lie down, and refuse to move, do not strike them, but place the palms of your hands tight upon their nostrils, and stop their breath. In this way, we have started them up more suddenly than it can be done by whip or goad.

If steers run away, do not thrash them, as this will induce them to run the faster next time; but feed them with a few nubs of corn, or something else that is good, and treat them kindly.

We once noticed that a teamster, who was offended with the nigh ox, in unyoking him, took out the bow as easily as possible, and then with the bow gave him a sudden and violent blow. For a long time after, that ox would start suddenly, as soon as the bow was out of the yoke, knocking away the yoke, frightening the other ox, and sometimes nearly knocking over the teamster. This shows the effect of bad management in producing bad habits.

The charge of stupidity and tardiness that is often made against cattle is unfounded, or must result from want of training and good usage, so as to call out their natural instincts, faculties, and powers. The Hottentots use oxen in the saddle, and train them to war, and they make terrible havoc among the enemy. They are also used as dogs, to guard flocks and herds, which they faithfully perform, caressing friends, and attacking enemies with great rage. If trained to the purpose, properly fed, and never over-worked nor heavily loaded, cattle would travel fast, instead of their usual slow motion In Africa, they generally travel on a trot, and frequently

go four or five miles an hour. In India, they often perform journeys of sixty successive days, at thirty to forty miles a day. A Sussex ox ran four miles, at the rate of fifteen miles an hour. A calf will run as fast as a colt. We have often found their speed sufficient, when we have attempted to catch them.

FOOD.

We have treated more particularly of food under the head "Horses," and the remarks there as to quality of food, its condition and preparation, and effects, will generally apply to other animals, but the horse, from more violent exertion, and greater exposure to the extremes of heat and cold, is more affected by food of an unfavorable nature.

GREEN HERBAGE.

The grasses are the principal food of cattle during the warm season. It is superior for milch cows, growing animals, and for fatting or idle animals; and it answers very well for working cattle, when at moderate labor. Cows feeding on grass alone, and having a good supply of the best quality, produce the largest quantity and the best quality of milk, especially in June, when grasses are in their prime. There is a variety of grasses in our pastures; the clovers are superior. They flourish well in new lands, but decline in old pastures that are neglected.

Rye is used for early feed, before grass starts, both for soiling and for pasturage. Orchard grass starts rather early in spring. When pastures fail in the latter part of summer, green corn fodder is given to cattle to supply the deficiency. It is raised to considerable extent for milch cows. With but little labor, great crops are raised, which make excellent feed. We have credible accounts of thirty or forty tons of green food to the acre. Southern corn is generally used, from its luxuriant growth; but Chinese Tree corn is best, and next to this the sweet corn.

DRY HERBAGE.

Hay is the principal dry herbage for cattle. Herds grass, with a small portion of clover and red-top, is the best for oxen at hard labor. It is good for cows; but clover, timely cut, and well saved, is a superior fodder for milch cows, young cattle, and sheep. We have found, by experiments, that herds grass, cut about a week after it is in blossom, when the seed is about full, is preferred by cattle, in a long run; gives the greatest weight, affords the most nutriment, and is better for working oxen than when cut at any other time. Some cut it in blossom, for cows.

Straw of various kinds is good food for a spare diet, and with grain, meal, or roots, it is good for store cattle. Straw and hay are better for all kinds of stock for being cut. [See page 97.]

Corn fodder is excellent for cattle; and when there is a prospect of a light crop of hay, it is in season to raise this crop. An acre of good land will yield six tons of dry fodder. If it be large, it should be cut, to prevent waste.

GRAIN, MEAL, &c.

Indian corn and meal is the principal grain fed to working oxen. It is far better for all kinds of stock for being ground, as it is more readily digested, and affords more nutriment. It is used in stall feeding. It is too rich for milch cows, excepting in a small way. It is best to grind the corn and cob together; as there will be more bulk. Corn alone, is too rich. Cobs contain some nutriment, as appears from their producing alcohol. Those who will not allow the chemist's test, must meet the irrefutable argument of the case of the old lady, who, in a scarcity of hay, kept her cow in fine condition mostly on boiled cobs.

Oil meal and flaxseed, in quite small quantities, are excellent for cattle, and all animals of hard tallow; but for animals of soft fat, as swine and poultry, they are not good.

ROOTS.

Roots are valuable for cattle, as they answer admirably the place of succulent food, for want of which animals often suffer in winter, being confined to dry fodder, which produces costiveness and various diseases. Roots have a slight laxative effect, and keep the bowels in fine condition, and guard against diseases of almost every description, during our long and trying winters. They keep young cattle in a thrifty condition; produce in cows nearly as much and as good milk as on grass; a few are excellent for working oxen, and fine beef may be made on roots alone. We have fatted young cattle on ruta-bagas as fast as hogs fatten on the best of food. Roots may be raised, in dry seasons, to supply a deficiency in hay.

MANAGING AND FEEDING WORKING OXEN

We quote again from Mr. Sheldon, who excels as a teamster. The following is from the Yankee Farmer:—

"Oxen, working on a stone-drag, on the foot of a plough, on the sled-tongue, cart-spire, or twitching stones or timber, should carry their heads well up, as this will enable them to do this work much easier. Those that work as leaders forward of other oxen should carry their heads low.

"Feed regularly; have the yoke the right length. Let the bows suit the neck. The yoke and bows to the leaders should set a little snugger than to the nib oxen. Never use the whip but from necessity. When about to strike the young steer or ox, ask yourself, 'Will he know what I strike him for?' Let each ox have a name, and be sure that he knows his name. Never speak a word to an ox without meaning. Have a particular word to start your team by, that all may haul together. Never hurry your oxen while you are riding behind them, lest they learn to haul apart.

"Oxen should be shod with a broad shoe. To travel on a hard road, the shoe on the fore feet should be set back, at the heel, nearly half an inch further than the

hoof bears upon it. Oxen are frequently lame by reason of short shoes.

"The best feed for oxen at hard work is to give to each ox two quarts of meal wet, mixed with good chopped hay, three times a day, and as much hay as he will eat. This is the highest feed working oxen ought to have, and on this, they will work ten hours a day. [Eight hours is enough, long followed.] A portion of rye with Indian meal is better than all Indian. Farmers who do not work their oxen hard, need not give them so much meal."

FEEDING AND MANAGING MILCH COWS.

The grasses, particularly the clovers, are the best summer feed. When these begin to fail, the deficiency may be supplied by green corn, which is very sweet, and produces a large quantity of milk, of excellent quality. The tops of beets, carrots, parsnips, and cabbage and turnip leaves, are good. Pumpkins, apples, and roots, may be fed as the feed fails. Give only a few at first, especially apples, and gradually increase.

Roots are of great importance when cows are kept on dry fodder. Potatoes, carrots, beets, turnips, parsnips, artichokes, and vegetable oysters, are good. The last three and cabbage turnip keep good, in the ground, through the winter, and are fresh and fine in the spring, before the grass starts.

Potatoes produce a great flow of milk, but it is not very rich. A little Indian meal is good with them, to keep up the flesh and give richness to the milk; and this is the case with beets and most kinds of turnips, as they tend largely to milk. A little oil meal or flaxseed is excellent, in addition to the Indian meal, to keep up a fine, healthy condition, and impart a rich quality to the milk, and gives a lively gloss to the hair of cattle, and softness and pliancy to the skin.

In all cases of high feeding in winter, particularly when cows have but few roots, shorts or bran are excellent to promote digestion and keep the bowels open. Three pints each of oil meal and Indian meal, or two

quarts of one and one quart of the other, is as high feed in these articles, as cows should ever have. On shorts, bran and roots, they may be fed liberally. Four quarts of Indian meal, in a long run, will dry up and spoil the best of cows, so that they will never recover.

Carrots are among the very best roots for milch cows, producing a good but not very great mess of rich milk, and keeping the cow in good health. Parsnips are nearly the same. Ruta-bagas are rather rich, and keep up the condition. To prevent any unpleasant taste in the milk from feeding turnips, use salt freely on them, and milk night and morning before feeding with turnips. Cabbage turnip, (or turnip-rooted-cabbage-below-ground,) has no such effect. It resembles ruta-baga, is raised in the same way, and yields as much or more.

Some keep cows in the barn, by night, in the warm season. They are saved from storms, and more manure is saved. There should be good ventilation in hot weather. Cows are much better for being kept in the barn nearly all the time in cold weather. To drink freely of cold water, and then stand out half chilled to death, is highly injurious. But they should go out a little while daily, in favorable weather, and be driven around gently, for exercise. Inaction is death to all the animal race. [See page 20.]

Cows and other cattle are generally badly managed. They are not *watered*, in short days, until ten o'clock in the morning, and their last chance for drinking is about four in the evening. Thus they go sixteen hours without drink, and during that time they take nearly all their food, which is as dry as a husk. They suffer to a great degree from thirst, and then drink to excess. As a remedy, give cattle a part of their breakfast only, and then water them, and water again after finishing their morning meal; and if kept up, water at noon, and again at night. If it be too much trouble to take good care of stock, then keep less, and they will be as productive and more profitable, if well managed. We have fed sheep that had constant access to water within eight or nine rods, and after eating thirty or forty minutes in the morning, they would all go and drink.

Milch cows are injured by being driven far to pasture, especially in hot weather, and still more if hurried by thoughtless boys.

SOILING.

In soiling cattle, they are kept up or in a yard most of the time, and they are fed on green herbage, which is cut and carried to them, such as rye for early feeding, and grass in its season, and when that fails, corn stalks, &c. This system is best adapted to sections where land is high and pasturage scarce. The advantages are, dispensing with interior fences, making more manure, keeping more stock on the same land, getting a larger mess of milk, and having animals always at hand. The disadvantages are, the trouble of cutting and carrying the feed, inferiority in milk when the feed is rank and luxuriant, and from want of exercise and pure air, unless particular attention be given to this subject, and greater liability of cattle to disease from the causes just named.

Some, in soiling, keep their cattle in the barn most of the time; others allow them to run out in the yard most of the day, and in other cases they have a range for a few hours, or half a day, in a barren lot, or one of short feed. Mr. George E. Adams, of Medford, who keeps forty or fifty cows, and is a very skilful manager, and feeds highly, soils a part of his cows, and, in addition to green food, gives them a little salt hay, chopped, and gives to twenty cows, daily, fifty pounds of Indian meal, oil meal, and shorts, in equal quantities in bulk. Soiled cattle in the yard or in a lot, should be protected from the hot sun by sheds or trees.

GENERAL MANAGEMENT.

Keep cattle at all times in a comfortable condition, free from undue exposure to cold, wet, heat, or other evils. Supply them with a suitable quantity of food, and of a quality suited to their condition and occupation. So various are the circumstances under which cattle for different purposes are placed, that there should

be a great difference, not only in the quality, but also in the quantity of food. Some are idle, while others are at hard labor. Some give a bounteous supply of milk, or produce young, while others are unproductive in every respect.

Give cattle a good supply of salt; but let them judge of this, and not put much on their food, and compel them to eat too much for the sake of food. This is the case when hay is salted liberally. Four or five quarts to a ton is enough. If the cattle need more, let them have it by itself. Give them a plenty of pure water, and let them be so situated when sheltered that they can have a good supply of pure air; they need much, as their lungs are capacious. Close air will injure the quality of the milk, as well as injure health.

In cold weather, keep cattle well sheltered, and in houses that are usually well ventilated, but which may be made warm in cold weather; and in mild weather, open them for a supply of fresh air; but do not let a strong breeze blow directly upon them. Do not allow cattle to lie out nights in the spring until the weather and ground are warm, nor in the fall after the nights become cool; and in the warm season, cows, and oxen at the time of laboring, should be sheltered during stormy nights.

REARING CALVES.

The least troublesome way of rearing calves is to let them take a natural course, and suck until old enough to wean, which, if economy be regarded as to milk, is when they are about two months old. If a cow gives a good mess, a calf will do well on half the milk by having clover hay or grass, when a few weeks old, and his size requires more food. But some who have a favorite breed, and wish to make a large calf in a short time, allow him to suck all summer, and sometimes two cows, when large enough to require so much food; and this may be economy, when the animal, in consequence of liberal feeding, can be sold at a high price.

When milk is in great demand, or is much wanted in

one family, or for dairy purposes, calves may be fed on scalded skimmed milk, thickened with meal, given warm, three times a day. It is better for the calf and cow for him to suck one or two days; then learn him to drink new milk, by holding the hand in the vessel of milk, and turning up the fingers in his mouth. Change gradually to porridge. He will soon learn.

We have raised calves in this way that were worth as much as others raised on pure milk, and all ran together. Pure milk generally gives the best growth while sucking, but those that are fed may be weaned more gradually, and are less affected by the change. We had only one cow that calved early, and we bought another calf, and two pigs, and fed all four on the skimmed milk, and had milk to use in the family, and made butter enough for a small family and some to sell; all from one cow. They all did well, very well.

We have been told that hasty pudding (mush) and milk are better than porridge. In artificial feeding, keep the vessel very clean, and scald it out often, and let it dry, and have the milk a little more than blood warm when first given, as it will cool a little before eaten. If calves scour badly, give a mess or two of new milk; if it continue, attend to the remedies recommended for that complaint; but this will seldom occur, if the following directions be attended to, which are necessary under any course of feeding: Keep calves in a clean pen, throwing in earth to absorb all impurities, and frequently remove and renew it. Keep by them a box of pure yellow earth, and some wood ashes, and a lump of chalk to lick; then they will seldom have the scours.

When two or three weeks old, give them a little sweet clover hay, if they do not have access to grass; and when three or four weeks old, commence giving them gradually a few roots, cut fine; carrots are best. In artificial feeding, flax-seed has been used to great advantage in making fine calves, and with great economy.

The Quality of Milk for Calves. Cows that give a large quantity of milk are better for nursing calves than those that give a small quantity of rich milk. There-

fore, it is best for calves to suck their share first, when they do not have the whole from the cow, as the last drawn is the richest. Milk which contains a large quantity of cream is apt to clog the stomachs of calves, and this obstruction puts an end to their thrift, and often proves fatal. Numerous experiments and observations of farmers confirm these remarks.

Calves with Sheep. We have kept calves with sheep, and highly approve of the plan. They are free from lice; are more healthy and active. The sheep eat the fine part of the fodder, and calves do well on the coarse, as they have strong powers of digestion. The dung and urine of the sheep, dropped on the fodder, have a favorable effect; they even possess medicinal virtues. We have had calves that came to the barn late, and were poor and lousy, and they would not move out of the path; on putting them with sheep, which had nothing but water, hay, salt, and ashes — the calves the same — they gained in two or three months so that we could hardly catch them. The lice disappeared at once. When the weather was fair, they ate out door on the snow, with the sheep, and at night retired to the shelter. Young lambs like this plan, as they often lay on the calves.

THE HAIR AND SKIN.

The hair serves as a protection and ornament; it is supported by roots in the skin. The appearance of the hair and feeling of the skin should be carefully noted, as they indicate health or sickness. A soft, supple skin, and bright, glossy coat, show good health, and a disposition to thrive; but a hard, dry skin, adhering to the ribs, and a dull, rough, staring coat, indicate something wrong, and that fattening is out of the question till health is restored. Let the eyelashes, the hairs in the ears and on the tail, remain; they were made for good purposes.

PERSPIRATION.

While in good health, a fluid is constantly passing from the surface of the body. No small portion of the food and drink taken by the animal passes off in this way. Excepting from exercise or hot weather, this is invisible, and is called insensible perspiration; but from great exertion and heat, it increases, and rises in visible vapor, and runs in drops. It is necessary to health that considerable perspiration should thus escape. When, from colds or other causes, the pores of the skin are closed, and perspiration is checked, this produces inflammation of the lungs, catarrh, rheumatism, or other disorders; and it is by turns the cause and consequence of disease. As a remedy, guard against exposure; keep the skin clean and well rubbed, and promote health in every respect.

CURRYING AND FRICTION.

On the utility of these operations, see page 90; also the last two articles. In this respect, cattle, excepting oxen, are generally neglected; but cows and young cattle, as well as oxen, would be far more comfortable and healthy, and of course more productive to the owner, for daily rubbing and currying, especially when confined to the barn. These operations serve the same purpose to animals as washing and bathing to the human system. In both cases, they are indispensable to health and comfort.

THE PULSE.

The natural pulse of the full-grown ox is fifty to fifty five beats in a minute. But it is some quicker in milch cows, particularly towards the period of parturition. A pulse much quicker than that here stated denotes fever or inflammation, while one much slower denotes sluggishness or debility. Yet circumstances are to be considered, as the pulse is quick and bounding at the begin

ning of a fever, and weak when the fever is assuming a putrid form.

ORGANS OF DIGESTION.

Cattle and sheep ruminate or chew the cud, and they have four stomachs. After the food is chewed, it passes down the gullet to the first stomach, paunch, or rumen, which is the largest, and lies on the left side. The food, after remaining awhile in the paunch, and becoming macerated, is forced up into the mouth again, in small masses or cuds, and ruminated. After this operation, it is swallowed again, and passes into the second stomach or reticulum. The gullet ends where these two stomachs meet, and the animal has power, in a great measure, to direct the food into either. This peculiar construction of the stomachs gives an important hint on the administration of medicine. [See next article.]

The second stomach consists of a great number of cells on the inside, resembling honey-comb. In this the food is further prepared, and then it passes to the third stomach, manifold or maniplus.

From the third stomach the food passes into the fourth, called the red. A ruminating animal will be satisfied with one third less food than another of equal bulk that does not chew the cud. The reason is obvious; as ruminating animals have many and strong digestive powers, and a greater amount of nutriment is taken up from the food.

Calves and lambs do not chew the cud while on milk, which descends directly to the fourth stomach. It is this stomach of the calf, with the milk curdled in it, that is used for making rennet. The most favorable time to kill the calf for this purpose is about two hours after sucking. After the food leaves the stomach, it meets with the bile secreted by the liver and deposited in the gall bladder, which further prepares it, and the pancreas or sweetbread, and spleen, contribute also to digestion. As the food passes along the intestines, the nutritious part is absorbed by vessels, and is taken up in the circulation, and carried to all parts of the body, and the innutritious part is reduced into excrements, and expelled.

GIVING MEDICINE TO RUMINANTS.

All medicines given to ruminants, or cud-chewing animals, of a nauseous nature, should be given in a fluid form, and poured slowly and gently down the throat, holding the head of the animal no higher than is necessary to prevent the liquid from running out of the mouth, and leaving the tongue free, that the animal may have command of his swallow. If medicines are given in solid form, they will go into the paunch, and if nauseous, they will give a distaste to the contents of the stomach, and prevent rumination, which is attended with danger. Therefore, nauseous medicines should not be given in solid form. If liquid doses are given to arouse the first stomach to action, or to abate fermentation, or absorb gases in that organ, or as a remedy for poisons, turn them down suddenly, and then they will be more likely to enter the rumen. But the surest way is to put them down through a tube or a stomach-pump. When the paunch is not affected with hove, or poison, or by the animal's eating too much grain, it is best to give liquid medicines, and slowly, that they may pass on into the other stomachs and intestines, and produce a more speedy action.

FREE MARTINS.

When a cow has twins, one a bull calf, and the other apparently a heifer calf, called a *free martin*, the heifer, by some singular law of nature, limited to cattle only, seldom breeds. It was long positively asserted, that free martins *never* breed, but we have heard of six exceptions. Several distinguished surgeons have examined into this singular phenomena, and it evidently appears to result from a deficiency in, or malformation of, the organs of generation.

BOTS IN CATTLE.

A neighbor gave the author an account of a cow that was slaughtered in the fall, and she had so many bots in

her that the tripe was thrown away. That cow, in the first of the fall, ran with a horse, and she was frequently licking him, by which she got the eggs into her stomach that produced the bots. Another case of the same kind occurred with a steer that associated with a horse.

WARBLES, OR GRUBS IN THE BACK.

In July and August, the *Œstrus bovis*, or gadfly, deposits its eggs in the hide, along the back of cattle. In the course of a few months, the grub is developed, and remains in the abscess it has formed in the skin till the spring months, when it escapes from its residence, burrows in the earth, changes to a perfect insect, and ther emerges, to pursue the course of its parent. The heac of the larvæ is always towards the bottom of the cyst and the respiratory organs are near the tail, and of course near the opening in the skin.

Some suppose that warbles do not interfere with the condition of the animal, and the butcher regards them as a proof of a disposition to thrive. But the effect on the hide is another affair. In tanning, the holes may *seem* to close. Some nice observers think that they cause great annoyance, fever, and emaciation.

When the grub is sufficiently grown to have its place known, a little corrosive liquor poured into the hole will destroy it. Perhaps some liniment, or other substance that will not injure the animal, may be used to destroy the grub. Sometimes it may be pressed out. It is said that strong brine will destroy them in any stage. When this fly attacks a herd of cattle, they will stick up their tails, and run as though possessed.

LICE.

Remedy. Mix lime and ashes together, and sprinkle the floor, particularly under their fore feet, as it will not be removed in cleaning the floor.

Another. Grease, fat, lard, or oil, rubbed on cattle, will destroy lice; but this should not be done in very cold weather, unless they are protected as it makes them very cold and chilly.

ANOTHER. Wash them in a decoction of cedar bark a few times.

ANOTHER. Buttermilk.

ANOTHER. Throw fine sand on them. Bulls paw in sand, and are never troubled with lice.

ANOTHER. When calves are thus afflicted in winter, let them run among sheep, and the lice will soon *clear out.*

ANOTHER. Take water in which potatoes have been boiled, and rub it all over the animals — cattle, horses or hogs.

ANOTHER. New rum or whiskey.

ANOTHER. Yellow snuff.

PHYSIC.

For the general effects of physic, see page 33. The principal purgative used for cattle is Epsom and Glauber's salts; one pound for a common dose, for a full grown animal; and half doses may be repeated every four or five hours, until an operation is produced; or, instead of the repetition of salts, give six or eight ounces of sulphur. Sulphur alone, in half pound doses, is a moderate laxative, but rather slow in its operation.

Linseed oil, from a pint to a pint and a half, is a good purgative; it is as good as castor-oil, or olive oil, and much cheaper; and it is surer than the former. Either of these oils may be used. Thoroughwort tea is a good physic. Aloes, though the best purgative for the horse, is uncertain for cattle, and sometimes dangerous, producing irritation and fever. The staple purgative for cattle is Epsom salts; they are more certain than Glauber's, and dissolve in less water. In all cases of severe costiveness, back-rake, and give injections — exciting ones if necessary; else it may be dangerous to give powerful doses of physic, or to repeat them, when the bowels are obstinately obstructed.

Physic is useful in the following cases: —

1. A purging drink, soon after calving, prevents the milk fever in cows.

2. A moderate purge given to old cattle once in five

or six weeks, is good to preserve health, and prevent garget in cows.

3. A purge is good in cases of constipation of the bowels.

4. In fevers physic is good, as it keeps the bowels open when there is a tendency to costiveness.

5. When, from too luxurious food, cattle eat to excess, and grow dull and heavy, with loss of appetite, and have symptoms of fever, purgatives will give relief.

6. In jaundice, physic is good; tonic medicines should follow.

7. When medicines are given to cows to prevent abortion, they should be preceded by gentle physic.

8. Purging medicines are good in inflammatory complaints, whether general or local.

DIURETICS.

Saltpetre, turpentine, and rosin are used for cattle. The dose of either is from half an ounce to an ounce. The following is a good diuretic drink: saltpetre, half an ounce; rosin, half an ounce; ginger, two drachms; mix in a little molasses and gruel.

HERNIA, OR RUPTURE.

In this complaint the intestine protrudes through the walls of the abdomen. It is occasioned by external violence and other causes. Some calves are dropped in this condition. The external wound may be small, or the injury such that the skin is not broken, and yet the internal wall of the belly may be ruptured. A tumor soon appears, which is a portion of the intestine. Sometimes it seems to affect the health of the animal only a little at first, but it soon becomes painful, strangulation takes place, and the contents of the intestines are obstructed in their passage through the protruded parts

Throw the beast and place him on his back, with the hind parts somewhat elevated. Make an incision through the skin, corresponding with the length of the tumor, taking especial care that the intestine immedi

ately underneath be not wounded. If there be not room to return the protruded intestine, owing to strangulation, then make the wound larger, carefully cutting between the fingers with a crooked knife or bistoury, and return the bowel.

Then bring the edges of the wound through the walls of the belly together, and retain them with stitches. The skin, if necessary, must be dissected back a little, in order to get at the whole wound. Then take stitches in the skin, bringing the edges close together. In a few cases, it is possible, and when it is, it is advisable to include the skin and muscular wall of the belly in the same stitch. A little simple ointment may be applied to the external parts to keep them soft and prevent soreness.

Apply a bandage of cloth some inches wider than the wound; sew it on, and let it remain ten days. When the edges of the wound shall have adhered mostly, remove the stitches and treat it as a common sore. Should much swelling appear under the bandage, foment it with warm water. The beast should be kept on light food, such as bran mashes, grass or hay, and on short allowance, and a dose or two of physic should be given during the progress of the cure.

In some cases the animal has recovered when there has been a rent in the intestine, if it has been stitched carefully. Thomas Brayer, an English cattle doctor, opened an ox in the flank, took out the most of his bowels, found a stoppage in the intestine, that was putrid three quarters of a yard in length, which he cut away, drew the sound ends together, upon a hollow keck, three inches long, sewed the ends together on it, leaving the keck within the bowels, and then sewed up the flank. In an hour the ox dunged, and the keck came away. He recovered and did service for years. An extraordinary case of healing power.

COLIC.

Symptoms. The beast is uneasy; lying down and getting up often, and sometimes swelling much, without signs of fever at first.

Remedy. Half a pint or a pint of hot drops is safe and sure.

Another. A pint of linseed oil, with half an ounce of laudanum.

Another. Give exciting clysters, and aromatics, such as sage, pennyroyal, peppermint, or other warming tea, in liberal doses.

Another. Take a quart of warm water, add half a pint of gin, sweeten with molasses; then put in half a pint of ground mustard seed, and pour it down.

WARTS, WENS AND TUMORS.

Mix tar and salt, and apply them; continue the practice, renewing the application frequently, until a cure is effected.

As a remedy for wens, some cast the animal and cut out the wen, then fill the cavity with powdered rosin and salt, well mixed; and carefully bring the skin back to its place and sew it up. Or wash the wen often, and for a long time, with warm vinegar, saturated with common salt. We have known large wens cured by warm salt water alone. Or put a hair seton through those that are not a sitfasts, or a wolf on the jaw, when they appear to be ripe, and wash them daily in soft soap.

For warts, cut them open, and apply blue vitriol, (*sulphate of copper*,) in powder. A physician was induced to try this, (and it was attended with excellent success,) from learning that a boy had many warts cured on his hands by sorting brass nails, from the influence of the copper in the brass. Neither the cutting nor the application is painful. Or apply to warts raw grated carrots, mixed with salt. Warts are sometimes cured by the application of spirits of turpentine, or lunar caustic.

LOSS OF CUD.

The food of cattle and sheep, and other ruminating animals, is returned from the stomach to the mouth, to undergo a second grinding. The loss of cud is only

a symptom of disease, not a disease of itself. Fever, debility, indigestion, and other causes, produce loss of cud. In cases of fever, give physic, as salts, and then aromatics, as ginger and caraway. In case of debility, give tonics, as gentian, columbo, and cascarilla. In case of indigestion, give exercise, if the animal does not have enough, and give roots, bran mashes, and other light and laxative food. Take a cud from another animal, divide it, and give the patient one half; or take the fine inner part of white elder, (*Sambucus alba* or *canadensis*,) scrape it fine, and give a wad for a cud.

OVER-HEATING AND OVER-DRAWING

Sometimes cattle, especially oxen, from too much labor and fatigue, in hot weather, become over-heated and almost melted. This relaxes the whole system, so that it is seldom restored to its original state The circulation becomes slow, the perspiration diminished and retained, and the beast is sluggish and comparatively useless through life.

Remedy. Give immediately, to each grown animal, a quart of gin, or, for want of that, a quart of West India rum, or new rum, or whiskey, in a little less quantity. This, acting as a stimulus, will restore, in a measure, the system to its primitive tone, quicken the fluids, promote all the secretions, and generally cure.

Another. Cayenne pepper, or hot drops, or any warm, diffusive stimulus, is good. The effect of warm medicines is to keep up the circulation and induce a slow and gradual cooling, and prevent the great evil resulting from a sudden change from hot to cold; as in cases of freezing, the frost is taken out by snow or cold water, to prevent the sad effects of sudden thawing.

Another. Mr. Jedediah Dow, of Portland, Me., has often tried, and highly recommends, a strong liquor made from a peck of ivy leaves, often called mercury or poison vine, (*Rhus radicans*,) while green, boiled down to a strong liquor. Give a pint for a dose. A few doses may be given at suitable intervals. It is said to be harmless. It seems that his is a remedy some time

after the evil has occurred. Be cautious in the use of this plant, as many persons are poisoned by touching it, and even some by looking at it, or by its effluvia.

For Oxen strained by Over-Drawing. Half a pint of soft soap, stirred up in a pint of new milk, and poured down the throat, is said to be a speedy cure.

MAD ITCH.

This disease frequently comes on with a kind of cough or jerk, at every breath. The brute jerks itself full of wind, frequently licking its sides and back, occasionally rubbing its head, and if not stopped in five or six hours, it rubs with apparent madness, and continues to swell till death, which will be within ten or twelve hours after the attack. It is supposed that this disorder is sometimes caused by cattle following hogs and eating corn-stalks which hogs have chewed and rejected, after extracting the sap or nutriment, and thus rendering them indigestible, which creates a fever and destroys the animal.

Remedy. Give the animal as much salt and soot as she will eat, and in a few hours give her from three quarters to one pound of sulphur or pulverized brimstone. In twenty-four hours give her a pound of salt.

JAUNDICE. OR YELLOWS.

This disease is not acute, nor is it marked at once by any prominent symptoms, but it creeps on insidiously, and it frequently gains a strong hold before it is known, and it is often obstinate and very difficult to remove.

Causes. The immediate causes are, an affection of the liver, by which there are too great secretions of the bile, or it is too thick to pass freely, or the duct by which the bile passes into the intestines is obstructed, and it is thrown back into the circulation. The remote or original cause is hard to trace. Food, drink, atmosphere, exposure, want of exercise, and other circumstances, have an influence. Inaction is the most fruitful cause, especially under high feeding.

SYMPTOMS. Dulness, langor, loss o. appe.ite, wandering about, dejection, reduction of milk, (in cows,) dryness and hardness of the skin, staring of the coat, yellowness of the eyes, mouth and urine.

TREATMENT. If the bowels are constipated, physic thoroughly, and continue partial doses of physic; give also loosening food, such as bran mashes, potatoes, carrots, and green herbage; or, if in winter, good clover hay. This treatment will prepare the system for astringents, which are the main curatives in this disease; stomachics are necessary to arouse to action and give proper tone to the digestive organs; and by giving gentle purgatives, or partial doses, and laxative food, astringents may be given without producing costiveness.

The following astringents are good to remove the disease: A decoction or cold infusion of yellow birch, black cherry, or barberry bark, or all mixed together. Give at the same time some warming medicine, such as ginger, caraway seeds, a small quantity of Cayenne pepper, pennyroyal, or other warm aromatic herb tea. Raspberry tea is good as a mild, moderate tonic and anodyne.

The following tonic is excellent: Powdered gentian root, half an ounce; powdered ginger, one drachm; Epsom salts, two ounces; mix in a pint of gruel, and give half in the morning and half at night. [See page 117.]

WOUNDS.

Very aggravated wounds in cattle are frequently cured with the yolk of an egg mixed with spirits of turpentine. Bathe the parts affected with the mixture.

ANOTHER REMEDY. Steep Life of Man root in chamber lye; boil it down one half, and bathe the wound several times a day with it. It is said to be very effectual. [See pages 51 and 56.]

FEVER.

Cattle are liable to this disease at all seasons, but it prevails most in the spring and fall. It is most common to young animal. Sometimes it is caused by too rich food. Colds, from exposure, or change of atmosphere, may produce it. There are various other causes.

Symptoms. Stronger and more frequent pulsations, coldness at the tips of the ears, and in the horns, and heat at the base of the horns, and in the mouth and breath; dulness and redness of the eyes; want of appetite and rumination; dryness of the nose, and fallen countenance.

Remedy. Sweat, or bleed lighly, early, but when the disease has advanced, bleeding would be dangerous or fatal. Physic with one pound of salts. If there is no effect in six or eight hours, give a clyster of soap suds, and repeat in half doses of physic, which continue every six hours, till an operation. If the constipation be obstinate, give an exciting injection. Those who do not bleed should continue light doses of physic, and give light diuretic doses; and give daily, till the fever abates, a good dose of raspberry tea. Nurse carefully, and give light and laxative food

INFLAMMATION OF THE BOWELS AND COSTIVENESS

Causes. Going into rivers and ponds after being heated and fatigued, and other exposures to cold; change from green to dry feed; change of pasture to higher feed; too rich feed of any kind, with too little exercise, and various other causes.

Symptoms. The bowels are obstinately constipated; the dung is voided with difficulty, and in small quantities, hard, covered with mucus, and sometimes stained with blood. The animal lies down, and then rises quickly; strikes at his belly with his hind feet. Contrary to colic, a fever attends this disease, and the muzzle is dry, and the mouth hot.

TREATMENT. First, back-rake in a thorough manner, then give exciting clysters, to clear out the intestines and stimulate the bowels to action; and as the third stomach, in this disease, is choked up with dry food, wash this out, so as to open a passage through to the fourth stomach, by giving warm water or thin gruel, and if the beast will not drink it, turn down several quarts.

Then sweat, if necessary from the severity of the case, and administer a dose of physic, and repeat half doses every five or six hours, till an operation is produced. See that there is a thorough purging, by which large quantities of fæces are removed from the bowels, else there has been only a partial operation, and hardened matter still obstructs the passages. After the physic has operated well, feed lightly, at first on mashes and green food, gradually changing to common diet, and the usual quantity.

Sometimes inflammation of the bowels occurs without costiveness, and the symptoms are the same, excepting those that result from costiveness. In this case, large quantities of raspberry tea, which is excellent for the reduction of inflammation, internal or external, will generally afford relief; or give other astringent or sedative teas.

VOMITING.

This evil is rare, but when it does happen, it is frequently serious. An ox, that vomited for fifteen days, throwing up his food and drink soon after taken, became much reduced, but was cured as follows: — An infusion of mint was given, with an ounce of camphor, suspended in a sufficient quantity of vinegar, added to every two bottles of infusion. This remained on the stomach. In three hours after, a very little hay was given, which was retained. He drank some water, whitened with rye meal, and he soon began to ruminate. The owner now indiscreetly fed too largely, and the disorder returned but was again checked by the infusion. He soon recovered.

To a cow that was taken violently with vomiting, three pints of an infusion of peppermint, with six drachms of camphor, dissolved in vinegar, were given and retained. Food that was given was soon returned. But after three drinks had been given, (at what intervals not named,) the stomach retained hay, and she ruminated. Next day, she vomited a little after eating, but another drink checked it; food was given her in a few hours, and she was sick no more. A similar case was treated in the same way, with a like result.

Other cases have been treated in the same manner, with success; but sometimes obstinate cases require a course of infusion for several days, before food can be safely taken in considerable quantity. We published this treatment in the Yankee Farmer, and from that, some have practised on it with success.

Another. Boil tansy and mint together; give one quart of this to the beast. If it does not stop, repeat the dose every hour.

RABIES, OR MADNESS

This terrible malady is produced by the bite of a mad dog, and it shows itself from a few weeks to several months after the bite.

Symptoms. Dull appearance; loss of appetite; anxious looks; red and protruding eyes; pitiful lows; constant voiding of dung and urine; driveling of saliva from the mouth; after a few days, the discharge dries up, and terrible thirst succeeds; then follows weakness of the loins and staggering; palsy of the hind limbs succeeds, and after lingering some six or seven days, the animal dies. Sometimes he is terribly ferocious, running furiously at every object, bellowing and tearing up the ground, and goring his companions.

There is no cure for this disease; and the most prudent way is to kill the animal as soon as the disease is well known. Perhaps it may be prevented, immediately after the bite, by cutting the wound so as to cause it to bleed, pressing out the blood, and afterwards applying some alkali, such as ammonia, a solution of pot or pearl

ash, or a lye of wood ashes; or apply some caustic. The bleeding may expel the poison, and thus prevent its entering the circulation. [See page 277.]

STAGGERS.

Cause. A change from poverty to rich feeding. It is most common in cattle turned into luxuriant pasturage in the spring, or early in the summer; and those that have been kept poorly during the winter are most liable to this disease.

Symptoms. Dulness; a constant disposition to sleep, resting the head on any convenient place, and reeling and staggering in attempting to walk. If this disease is not checked soon, it will be likely to terminate in inflammation of the brain, or a general fever.

Remedy. Bleeding is practised, but sweating may be preferable. Give physic, and if there be constipation of the bowels, give injections; if the costiveness be severe and obstinate, back-rake also. Feed lightly, and let the animal gradually return to good keeping. Those who do not bleed may aid in the cure by giving a mild diuretic. Saltpetre is good.

INFLAMMATION OF THE BRAIN.

This is not common, but it is a very severe disease. It is sometimes called *frenzy*. It is most prevalent in well fed cattle, and in the hot season.

Causes. A redundancy of blood, induced by cattle thriving too fast when turned into rich pastures; or being fattened too fast, to fit them for show or sale. It is sometimes caused by an intense sun, when they are in fields without shade. It may be brought on by contusions or fright.

Symptoms. The beast is dull and stupid, in the early stage; his head is protruded; he ceases to eat or ruminate, and appears unconscious. He will stand motionless; after awhile he may drop, and then start up suddenly, look wild, stagger, fall, and rise; runs against everything in his way. At other times, he is inclined

to mischief; he stamps, tears up the ground with his horns, bellows tremendously, attacks every one within his reach, and so continues till exhausted, and he soon dies.

Remedy. If the animal be costive, back-rake and give injections. Bleed till he falters, and give physic. If the disease does not abate, insert a seton on each side of the poll, well smeared with blistering ointment. Give mashes and green food, if in the season; if not, give a few roots. Feed lightly. If he will not eat, turn gruel down the throat. Avoid tonics and stimulants

HORN OR HEAD-AIL.

Some have attributed this disease to an affection in the tail, and have commenced doctoring the animal at that end. But some cattle that have unfortunately lost their tails, have had this disease. In some severe cases, there is no doubt that the affection extends through the spine and the tail is affected also.

Sanford Howard Esq., one of the editors of the Albany Cultivator, distinguished as an excellent manager of stock, says that the hollow horn, as it is called, is incident to cattle without horns; that it is an inflammation of the lining of the nostrils and the cavities of the head and horns, sometimes extending to the brain, and producing vertigo, and in its advanced stages affecting the digestive organs, the heart, lungs, and the whole system, and death follows. The predisposing causes of this disease are weakness, debility, and exposure; and the effects are similar to a severe cold in the human race. Sometimes the nostrils are nearly filled by inflammation, and matter collected in them.

Symptoms. General dulness; tardiness in moving; yellow, viscous matter about the eyes; failure of appetite; a disposition to lie down; giddiness, and frequent tossing of the head; often a stiffness of limbs, and, in cows, the milk fails, and there is always a wasting of flesh; the horn loses its natural heat, and feels cold to the hand.

Preventives. Turpentine applied to the head, be-

tween the horns. The occasional use of garget root, poke weed, (*Phytolacca decandra.*) Soot, salt, and pepper, given occasionally.

TREATMENT. Some recommend bleeding, but this sometimes proves fatal. Perhaps it has been useful in some cases, of animals in high condition, and in a fever, which has induced this recommendation. Animals in low condition are most subject to this disease, and they should have nourishing food to keep up their strength, unless a fever prevails. Keep them in a warm shelter, clothe warmly, and give warming, soothing teas, and warm gruel. If the tail is affected, cut it off. If there be a pressure of matter in the horns, boring them will give temporary relief. Give gentle physic. Rub the animal frequently, particularly on the back. An application between the horns, as hot as can be borne, of spirits of turpentine and good vinegar, one gill each, and salt and black or red pepper, half a gill each, simmered together, and retained by a cloth wound round the horns, will be highly useful, and has, in some cases, cured alone. This general course of treatment, or parts of it, will be useful in aid of other remedies.

REMEDY. Joseph Fichner, veterinary surgeon, who had long practised in France and Philadelphia, says, "The animal is in a high fever, as perceived by the throbbing of the breast. Bleed one or two quarts, and give two table spoonfuls, three times a day, of the following mixture, dissolved in a pint of warm water, until the animal recovers:—Glauber's salts, six ounces; cream of tartar, two ounces; purified saltpetre, two ounces; powdered root of altheæ, one and a half ounces. If the animal be costive, give a clyster of one handful of camomile flowers, and two handfuls of flax-seed, boiled in two quarts of water, and strained; to which add half a pound of linseed oil, and half a gill of salt. Or use a quart of wheat bran, instead of the flowers and flax-seed."

If a discharge be effected at the nose in season, there will be no need of boring the horns. Mr. Abel Gleason, of Wayland, Mass., has pursued the following method, with excellent success "Put half of a table spoonful of

spirits of turpentine on the head, between the horns, and with a syringe inject into the nostrils strong vinegar, salt and pepper, keeping the head up during the operation. This will produce a copious discharge from the nose." Give gentle physic, and if the animal is in high condition, feed lightly for a while.

ANOTHER. The Massachusetts Ploughman says, that Mr. Eliphalet Collins, of Bradford, cures the horn-ail by soft soap and common salt, equal parts, in a bag, and tied on between the horns. It may be necessary to renew the application two or three times. Mr. Sheldon, of Wilmington, uses this remedy, and he thinks the cure is effected by the animal's licking the soap and salt that run down on its nose.

ANOTHER. It is said that some cases have been cured by pouring half a gill of spirits of turpentine into the cavity on the head, just behind the horns, and repeating it once a week; but this is used mostly as a preventive Some say that this is good, but a spoonful of hot brimstone is better.

TAIL SICKNESS

This disease is a wasting of the end of the tail, and if it be not cut off above where it is affected, the disease will generally extend, and prove fatal. It is attended with weakness and sluggishness. The end of the tail becomes hollow and relaxed.

REMEDY. Amputate a small piece of the tail, which will be attended with the loss of some blood. But when the tail is but little affected, and near the end, a slit of an inch and a half in length is preferable to amputation

HOOF-AIL.

CAUSE. Driving cattle on hard or muddy roads; numerous other causes are assigned, among which is bad food.

SYMPTOMS. Lameness, inflammation, swelling in the feet, soreness between the claws of the hoof.

REMEDY. Wash the foot in a strong pickle of salt and

water; and if this does not cure, use an ointment of corrosive sublimate and lard. If the parts between the hoof have become dry and hard, cut them out and apply a healing ointment.

ANOTHER. We have found blue vitriol an excellent emedy. Apply a solution twice a day.

ANOTHER. With a chisel cut off three fourths of an nch of the toe of the hoof; if it does not bleed freely, ake a shaving more, till the blood runs freely. It will top bleeding in fifteen or twenty minutes. Keep the nimal out of wet and mud two or three days, and he vill soon be fit for labor.

WOLF, OR HOLDFAST

This generally occurs in cattle from two to four years old, when they are shedding their teeth. It is supposed to be caused by the old teeth being retained when the new ones are starting, which causes the new teeth to grow out on the side of the jaw, in bony excrescences. Some have cured by pulling out the old teeth, that are in the way, and which are generally carious. One writer says that spirits of turpentine, applied externally, will cure the wolf, if taken in time. It affects the animal sensibly at first, but he soon gets over it.

COLDS, COUGH AND HOOSE.

When the cough is slight, warm housing alone may cure; it may be necessary to give a warm drink, such as sage, pennyroyal, or other herb tea, sweetened with molasses; or, as a more effective medicine, give a table spoonful of tar, and the same quantity of honey or molasses, mixed with a quart of new milk, in which steep a head of garlic, or two onions, bruised fine. Give green food if it can be had; if not, feed partially with roots and mashes.

If the disease continue, and the animal loses flesh, becomes hide-bound, and its coat is staring, it is a serious affair, and in addition to the above treatment, give gentle laxatives, say half doses of physic, and nourish

ing drinks, such as gruel, flax-seed tea, infusion of malt, and if there be no symptoms of fever, give with the laxative medicines some cordial, such as an ounce of caraway seeds, and three or four drachms of ginger. Keep the animal dry and warm, and give good ventilation. In favorable weather, the field is the best place in the day time. Many practise bleeding for colds, but this should be done in its first stages, before the animal is reduced in flesh and strength. As soon as the disease assumes a serious form, a seton should be put into the dewlap.

Stimulating drinks should not be given. If there be difficulty in swallowing, rub the following liniment on the throat: one ounce of the spirits of turpentine, or any common oil, and half an ounce of liquid ammonia.

Sometimes an epidemic prevails extensively, from sudden changes in the weather, or atmospheric influence, often called catarrh and influenza, affecting the head and throat, and sometimes the lungs, similar to these diseases in the human race, and often proving very severe, without early attention. If the lungs be not affected at first, they soon will be if the disease be neglected. As a further treatment in such severe cases, bruise two ounces of liquorice root, steep it well in a quart of water, then add two drachms of powdered squills; sweeten with honey or molasses, and give morning and night.

If this treatment does cure, the cough continues, and there is reason to suppose that there are worms in the air passages, which, in cases of the hoose, or advanced stages of colds and coughs, is often the case, give a drink for worms, prepared thus: spirits of turpentine, two ounces; sweet spirit of nitre, one ounce; laudanum, half an ounce; linseed oil, four ounces; mix, and give in a pint of gruel. This medicine enters into the circulation, and affects the worms in the lungs, and in the passages to them; for the turpentine can be smelled in the breath of the animal, after taking this medicine. Those medicines recommended for Husk in calves will be good when the disease has run on to that state.

INFLAMMATION OF THE LUNGS.

Causes. Catarrh or cold neglected may end in the disease; it is also caused by obstructed perspiration from sudden and great changes in the weather, or exposure to wet; by being driven long distances and exposed to damp, cold air at night. Young cattle, particularly calves, are most liable to it. Neglect of currying and rubbing is a predisposing cause.

Symptoms. Dulness, shivering, a sore cough, coldness in the ears, legs and roots of the horns, heat in the breath and mouth, ropy discharge from the mouth, inactivity, and heaving of the flanks.

Remedy. Sweat or Bleed in the beginning, and put a seton in the dewlap, and give a dose of physic. Give warm water for drink, and give bran mashes. Give flax-seed tea, and soothing herb teas, with molasses or honey. Keep the animal dry and warm.

HUSK, OR HOOSE, IN CALVES.

It may be seen by the last article the first or original cause of this disease The immediate cause is worms in the windpipe, which occasions violent irritation, and a constant hoosing, or coughing, and if no remedy be used, the organs of digestion become impaired, and consumptive symptoms soon follow. The disease often runs through the whole herd, occasioning great mortality. It is most prevalent in dry summers. It requires prompt attention.

Remedy. Asafœtida, three ounces; aloes, three ounces; one quart of vinegar. Boil together till dissolved. Give each calf a table spoonful, in each nostril, every third day, taking care to hold the head well up, so as to prevent waste. Generally three applications will cure.

Another. One pint of spirits of turpentine, one ditto of train oil, two ounces of spirits of vitriol, two ditto of asafœtida, and two ditto of hartshorn. Mix the whole in a bottle, and shake well. Pour one table spoonful

down each nostril, three successive mornings. The calves must fast the night previous to giving the dose. If the first trial does not succeed, repeat it after eight or nine days.

DIARRHŒA, OR LOOSENESS.

There are various causes for diarrhœa, such as a change from dry to green food, or from short to luxuriant pastures, change of climate, change of food or water, poisonous plants, atmospheric influence, and other causes.

It should not always be regarded as a disease; therefore it should not be stopped immediately, as it may be only an effort of nature to throw off disease, or prevent it, by discharging something that is injurious. Let it run twenty-four hours. Then if it be violent, give half a dose of physic, with a table spoonful of ginger, in order to assist nature in ridding the bowels of any irritant matter. Next day, give astringent medicines, and keep the animal on dry food. If neglected or ill treated, this disease is liable to degenerate into dysentery, which is a more serious complaint.

These diseases are often confounded; diarrhœa is the voiding of dung in too fluid a form, in large quantities, and in a full stream. It sometimes has an offensive smell, and is occasionally mingled with blood; it is incidental, occurring at all seasons of the year, and often stopping of itself. Yet this is often the precursor of

DYSENTERY.

Causes. Long journeys, and lying out on cold, wet nights, exposure to sudden changes of weather, taking cold after calving. It is most common in spring and fall, and in low, wet, swampy situations. It sometimes results from neglected diarrhœa.

Symptoms. If not preceded by diarrhœa, it begins with frequent and painful efforts to discharge dung, which is thin, slimy and stinking, mingled with mucus,

and often with blood, the animal is restless and in pain, often lying down and rising; a rumbling noise is heard in the intestines. If neglected, he grows poor, though the appetite and rumination continue for some time; at length these fail, and the food passes off half digested. As it continues, the mucous membrane, or lining of the intestines, sloughs off, and mingles with the dung. This disease consists in the inflammation of the lining of the large intestines.

Remedy. Sweat, and give a pound of salts, with an ounce of powdered caraway seeds, in order to remove from the bowels the offensive matter which may cause the disease. Put the animal in a house or yard, and feed on hay, and ground oats or mashes, and oil cake. If he will not eat, for two or three days make thick gruel of these, and turn down a little three or four times a day

If the purging be not checked in twenty-four hours after giving physic, give moderate astringents only, as it will be dangerous to stop it suddenly. Raspberry tea is a mild astringent; it is an anodyne, also, having a very soothing effect on the irritated and excoriated bowels. If it do not stop soon, give mutton suet one pound, and new milk two quarts, boiled together till the suet is dissolved; then add half a drachm of opium, and half a drachm of ginger, first mixed with a spoonful or two of liquid.

Another. The following is a good astringent medicine, after the bowels have been well cleared out with a purgative: Powdered chalk, one ounce; opium, one drachm; catechu, four drachms; ginger, two drachms; mix, and give in gruel.

Another. Sweet gum bark. [See page 107.]

Another. Charcoal powder has cured almost hopeless cases in the human subject, when the patient was reduced to a very low state. Burn soft seasoned pine, that is pure and lively or bright, to a coal, then quench it. Pulverize, and mix with honey or lard, and then grind fine as possible. Mix in warm milk or water, and give. A tea-spoonful is a dose for an infant, and nearly a great spoonful for an adult. Give an ox or cow four to eight table spoonfuls. Charcoal is a disin

fectant, and has a salutary effect on the bowels, which, in a severe case, and advanced stage of this disease, are tending to a putrid condition.

Some of the remedies recommended for Looseness in Calves, and for Scours and Dysentery in Sheep, are good for cattle.

LOOSENESS, OR SCOURS, IN CALVES.

Young calves are frequently destroyed by scours, if not stopped soon after the attack. The disease is often caused by exposure to too great heat or cold; sometimes to rains, and frequently to too great a flow of milk, when the dam's udder is feverish, or when she eats unwholesome food. The mucous membrane becomes inflamed, the discharges are white and watery, and if the disease is not checked in a few days, or weeks at most, the lungs inflame, and death ensues. When the little animal becomes affected, it should be put in a warm, dry stable, and not permitted to suck more than half the quantity of milk it is wont to do, but should be let to the cow regularly three times during the day.

Remedy. Make a tea, of equal portions of white oak, beech, and slippery-elm bark, and give in moderate doses, twice a day. Linden or bass wood, or white pine, may be substituted for slippery-elm; and raspberry, or other vegetable astringent, for white oak.

Another. A little powdered chalk, given daily. If calves are supplied with chalk, &c., as recommended on page 181, they will seldom be troubled with this disorder.

Another. A table spoonful of ground allspice in a gill of boiling water, given when lukewarm, twice a day.

Another. Give, twice a day, half an ounce of salts, equal proportions of Epsom and Glauber's. An experienced veterinarian recommends this as very safe and effectual.

Another. Break, and beat up two eggs, and pour them down the throat, twice a day. [See the last two articles, page 204.]

CAUTION. Be careful in giving astringent medicines, lest the looseness be checked too suddenly, as this may prove fatal.

MANGE, SCURF, OR SCAB.

This is a cutaneous disease, which is very contagious, for as many cows as come in contact with one having the disorder, will be sure to catch it. Its symptoms are a scurf on the external part of the body, which is always attended with an itching. Some say that it is a kind of animalcule, which burrows in the skin. It generally attacks those animals which are low in flesh, and have been fed on poor forage.

The first step is, to take a currycomb, and gently curry off the scurf. After this, the following application is to be rubbed on the parts affected, which may be repeated every three or four days till a cure is effected; and it seldom requires more than two or three applications: — Sulphur, one pound; spirits of turpentine, half a pint; train oil, enough to make it into a liquid.

ANOTHER. Mix tar and soft soap, and apply it to the parts affected.

ANOTHER. Lard and sulphur, in equal parts; melt, mix, and apply all over the affected parts; or, in severe cases, all over the animal. [See Itch, in "Swine."]

CHOKING.

As cattle are choked with various substances of different forms, and of different degrees of hardness, and the substance may be high or low in the throat, no one mode nor any definite rules will do in all cases. The operator must judge what is best from the circumstances.

When the obstruction is at the upper part of the throat, the hand may be run down, through a wheel-box, or piece of wood with a hole in it, put in the mouth, to prevent being bitten, and the impediment removed; or by placing some gun-powder on the lower part of the tongue, the coughing which follows may throw it out

When the substance is far down, near the stomach, i

may be pushed down with a stick, like a hoe handle square at the end, that it may not slip by the article, and wound the gullet. One of the surest and best modes of relief is to have a probang, or hollow tube, to run down the throat, with metal at the end, nearly large enough to encircle the obstructing substance, and with a rod in the tube, and a corkscrew attached to the end, bore into the obstruction, and extract it. The corkscrew should play in the centre, to avoid wounding the throat

Another Mode. Sometimes by turning soap suds or oil down the throat, and rubbing it, and pushing up and down externally, the obstruction can be removed.

Another. An animal was choked with an apple, and no means were at hand affording relief; he was cast, and an incision made in the throat, and the apple removed. In a few days he seemed to be well.

Another. A butcher grasped the windpipe of a cow that was choked, just below the potato, and held firmly a minute or two, stopping her breath; she sprang forward violently, and was relieved by the potato's going down.

Another. We have known animals that have been choked with potatoes relieved by putting a block against the throat, and smashing the potato, by a mallet, and no injury followed. This is condemned as too harsh, as the bruising of the throat may produce inflammation.

BLAIN, OR BLADDERS.

The tongue is swelled, and on the side, and under it, are bladders filled with a glutinous matter.

Causes. High condition and rich pasturage, producing a redundancy of blood, or from taking cold in that state. Yet it occurs sometimes in various situations, and at all seasons, but is most common in wet, marshy situations, and in hot, sultry weather.

Symptoms. Langor, red and inflamed eyes, with tears; swelling about the eyes; blisters under the tongue; quick pulse; heaving of the flanks; slavering at the mouth, and sometimes constipation of the bowels.

Remedy. Immediate action is necessary, lest the

disease assume a malignant form. Cut the blisters along the tongue, or break them with the fingers, and considerable matter will ooze out, and give relief. Give physic, and feed lightly. If there be a fever, give a fever drink, as follows: — Emetic tartar, one drachm; powdered digitalis, half a drachm; saltpetre, three drachms; mix, and give in a quart of gruel, night and morning, and keep the bowels open by gentle physic.

Should loss of appetite and weakness continue after the fever has subsided, give the following tonic: — Gentian, two drachms; tartrate of iron, one drachm; ginger, one drachm; mix, and give once or twice a day, in a quart of gruel.

As the animal may not eat hard food, on account of soreness in the mouth, give soft food, and offer gruel; and if he will not drink it, pour it down his throat two or three times a day.

Mind that no matter from the blain fall on any sore place on the hands, as it will cause ulcers, — for cure of which, apply lunar caustic.

BLACK TONGUE.

[See page 146.] We cured cattle of this disease, and prevented its spreading, as follows: — The head ox was first violently seized, so that he could hardly eat for several days. The whole stock were fed liberally with potatoes, with a good portion of salt. In a short time the second ox was attacked, but not more than half so severely. The next animal had it quite mild, and it tapered off to nothing, being barely perceptible in the fifth, where it ended. They all soon recovered.

HOVEN, OR BLOAT.

This disease is caused by turning cattle from short pastures, or when empty, upon luxuriant clover. They eat to excess, and as the large mass of food is not readily digested, fermentation takes place, evolving large quantities of carbonic gas; the stomach swells almost to bursting, pressing upon the lungs, and pre-

venting their expansion, and if not relieved, the anima dies of suffocation. Other tender and luxuriant grasses as well as potatoes, turnips, and other succulent food will produce this disorder, when taken in excess Horned cattle are most liable to this disease; sheep and swine are also subject to it, and horses do not always escape.

PREVENTION. Do not turn cattle upon luxuriant feed until the dew or rain is exhaled; and if changed from a lean pasture, or when empty, allow them to remain but a short time, especially at first. Give salt often.

SYMPTOMS. The paunch is swelled enormously, in severe cases. In the last stages of this disease, the tongue hangs out of the mouth; the eyes are protruberant, and the rectum, or last gut, is distended externally; and the beast falls, and exhibits signs of the most severe pain.

TREATMENT. In mild cases, or in the first stages of almost any case, drenches of various kinds will afford relief, but in a severe case, far advanced, the passages of the stomach are not only stopped by the great distention, but the stomach is so full that medicines will not have their usual effect; and sometimes, without immediate relief, by the probang, or by tapping, the animal must die. A leaden tube may be used to open a passage to the stomach, and the medicine may be turned down through it. In some cases, farmers have opened a passage with a flexible stick, and let off the gas, and in this way a passage may be opened for medicine. All medicines given for this disease should be poured down suddenly, that they may enter the paunch [See page 185.]

REMEDY. Make a quart of lye of wood ashes, and turn it down. Judge by the taste whether it is as strong as can be taken safely. The alkali neutralizes the gase and the swelling subsides.

ANOTHER. Give volatile spirit of ammonia, a table spoonful to an ox or a cow.

ANOTHER. Give a tea-cupful of spirits of turpentine diffused in oil. In this way, several pairs of oxen were saved, in very severe cases, which it was thought would prove fatal. The turpentine is more safe in oil.

ANOTHER. Give a dose of rennet, about twice as much as used for a common-sized cheese.

ANOTHER. Give a good strong dose of thoroughwort tea, with a little tansy.

ANOTHER. Give a large dose of salt.

ANOTHER. The infusion of camphor, as recommended for vomiting in cattle. [See page 195.]

ANOTHER. Incorporate, over a fire, a pint of sharp vinegar and half a pound of hog's lard, and add more vinegar, that it may not burn. Col. S. Jaques, of the Ten Hills Farm, Somerville, distinguished for his attention to stock, has used a pint of vinegar with success.

ANOTHER. Give two drachms of chloride of lime, dissolved in two quarts of water.

ANOTHER. Give a pint of gin, or a good dose of any ardent spirit.

ANOTHER. Twist a band hard, place it in the mouth, and tie the ends tight over the top of the head. Chewing the band gives a motion that causes gas to escape.

ANOTHER. Draw the tongue out suddenly and forcibly, which causes eructations of gas.

ANOTHER. In tapping, the operation is performed on the left side, between the last rib and hip-bone, a little nearer the former. It should be done two or three inches deep, in order to reach the paunch. A *trocar*, such as used in tapping for dropsy, should be inserted, or an elder or other quill may be used to conduct out the gas and contents of the stomach that may escape. After the gas has escaped, apply to the orifice an adhesive plaster. Shoemaker's wax will answer. Although this may at first relieve and seem to cure, yet bad consequences sometimes result from it, that are not known until weeks or months afterwards. As the paunch subsides, leaving the flank, gas and particles of food may be thrown into the abdomen, unless a trocar is carefully used.

ANOTHER. The surest and most speedy remedy is the stomach-pump, or the probang, by which the gas is let off, and immediate relief given; and then the fermentations may be checked by some alkali or stimulus, and the contents of the stomac. carried off by a dose of

physic. The probang is a leather tube, one and a half inches in diameter; it may be made stiff enough to enter the stomach by inserting in it a rod or stick. At the insertion end of the probang, there should be a leaden tube, with holes in it. The distance from the teeth to the stomach of a large ox is six feet.

When cattle have suffered a severe attack, the stomach will be weak for some time, and they should be fed lightly, and have a good dose of herb drink daily, for several days.

ULCERS.

When ulcers break out, physic, but do not bleed. Foment with warm water, and wash in soap suds; and apply equal parts of turpentine, hartshorn, and camphorated spirits. Wash the ulcers several times a day in a solution of chloride of lime. Give mashes and thick gruel. A poultice made of the soft pulp of roasted carrots is excellent for old sores and ulcers.

MILK SICKNESS.

This name, together with "Trembles," has been applied to a peculiar and most malignant disease, occurring in some sections of the Western States, affecting horses, cattle, sheep and goats, and persons who use the meat or dairy products of infected cattle. It prevails more or less in all the Western States, and extends as far south as Mississippi. It is most common in Indiana and Illinois; never occurs east of the Alleghany Mountains. Among early settlers it made dreadful ravages, and often caused the breaking up of communities, and seeking more favorable locations.

Animals may be so much diseased that their flesh and milk will affect persons partaking of it, and yet the animals themselves exhibit no evident symptoms of disorder. The latent disease may be discovered by subjecting the animals to violent exercise, that will bring on tremors, spasms, convulsions, or death, according to the amount of disease; in this way butchers try suspected animals.

Symptoms generally exhibit themselves but a short time before the disease becomes violent. The animal walks about without any apparent object in view; all food is refused, and there is evidence of impaired vision. The eye is first of a fiery appearance, increasing to a deepened red color, until the animal staggers and falls, when, if he rises, there will be trembling in the whole of the muscular system. He usually dies after a few convulsions, seldom lingering beyond a few hours. Sometimes he falls suddenly, as if from a heavy blow, and expires in a few minutes.

Cause. Numerous investigations have been made by practical, observing men, and by men of science, analyzing soils, waters, and plants, and rewards have been offered by legislatures, and yet no satisfactory cause has been assigned for this terrible malady; but of late years it is supposed to be caused by poison oak, (*Rus toxicodendron,*) a shrub that grows from one to three feet high, and is peculiar to flat lands, as this disease prevails only where this plant is found. It disappears before good cultivation; hence its greater prevalence in new countries.

As to a remedy, it is very seldom found. It is said that if the bowels can be opened, the animal generally recovers; but this is very difficult indeed. First, attend to back-raking, and then give several large injections with a double quantity of Cayenne pepper or tobacco, to excite a discharge from the bowels. Then give a large dose of physic, of one kind, and follow with half doses or more, of other kinds, at intervals of four or five hours. Give also a diuretic. In addition, steam or sweat the animal smartly, by standing him over vessels of hot water, to which add hot stones, to keep up the heat, and lay rugs or quilts over him, to hold the steam, and apply cloths from hot water to the extremities, that do not have the benefit of the steaming. This steaming and sweating will aid in the operation of the medicine, and be beneficial also from the perspiration and warmth at the surface. At the time of steaming, it would be well to pour down several quarts of quite warm sage, pennyroyal, or other hot herb tea, to which add a little Cayenne. This will tend to excite the action of the stomach, and increase the perspiration

BLOODY MURRAIN.

Cause. A disordered state of the digestive organs, brought on by an unwholesome state of the atmosphere, or by feeding on unhealthy pastures of low, damp, cold meadows, infested by aquatic plants, which, taken into the stomach, become indigestible and putrid, and thus engender disease; for cattle are affected on various low land pastures, while they have escaped in intermediate pastures of high lands. Bad water promotes it. Some attribute this disease to the overflowing of the gall, (which is only a secondary cause,) affecting the liver, and causing leeches therein, and a flow of blood outward or inward. In this country it is most common in new sections, in the western region, where cattle run in the woods. One writer thinks that a sudden change of food, from green to dry, and the reverse, or other changes of food, will cause this complaint; hence its common occurrence in spring and fall.

Symptoms. Decrease of appetite, stretching of the neck, shaking of the head, drooping of the ears, dulness of the eyes, and deafness. These signs increase for several days; then ensue stupidity, unwillingness to move, great debility, total loss of appetite, running at the nose and eyes, a husky cough, shivering, sometimes sickness and throwing up of bile, pulse quick, contracted and uneven, a constant diarrhœa of green excrements, and frequently bloody matter in the excrements and urine, a stinking breath, a nauseous steam from the skin that infects the air, tumors or boils under the fleshy membrane of the skin, and eruptions appear all along the skin. These symptoms generally increase for about a week, when the crisis takes place for the better or worse. In the last stages, bloody matter is often discharged from the mouth and nostrils. Sometimes the attack comes on very suddenly, and the animal seldom lives more than twelve to thirty-six hours after the bloody discharges commence, and these may be the first symptoms noticed.

Preventives. Air-slaked lime, or wood ashes. These

correct the foul acid matter in the stomach. Salt freely as a preventive. Give pure water, if possible. Sulphur is good. So is tar. Give from a gill to half a pint to each grown animal, every two or three weeks. Rub tar on the head, between the horns, and on the nose. A writer in Ohio says that he used salt and air-slaked lime with good success for twenty years. The alkali prevents the enlargement of the gall. A writer in the "American Farmer" gave his cattle a little slaked lime with their salt, two or three times a week, and thus protected them, while his neighbors lost many, sometimes nearly all, by this disease. In one case, a farmer lost all his cattle by murrain, while the cattle of a neighbor, to which he gave salt and lime every morning, all escaped, though daily running among those that died.

TREATMENT. It is best to pay particular attention to preventives, as this disease is difficult to cure, or seldom cured in severe cases. As soon as an animal is infected, remove it from the rest into a well-ventilated shed or house. Bleeding copiously is recommended; but do this early. Wash the body all over with lukewarm water and vinegar, and rub the skin frequently, that the pores may be opened. Make a rowel in the dewlap, and keep it open until a cure is effected. If the dung be hard and dry, which may be the case in the first symptoms, give a cooling purge, such as salts. In case of very obstinate constipation of the bowels, back-rake, and give exciting injections before giving physic.

Give a drink of bran and water, lukewarm, but give no hay until the animal is sufficiently recovered to chew the cud. When a purging comes on voluntarily, check it by giving four ounces of powdered chalk, two ounces of powdered anise-seed, one ounce of powdered ginger, and one drachm of opium, cut fine, mixed in a quart of warm gruel. In all cases, give physic and laxative food when there is costiveness; and when there is diarrhœa, check it gradually, avoiding extremes.

CAUTION. All the litter about a sick animal should be burned, and all the cattle that die of the complaint should be buried five feet deep, to prevent the effluvia rising from the carcass and spreading the infection.

Another Remedy. Mr. Brooks, of Princeton, whom we have already quoted, bleeds, in the first stages, till the animal falters, and, when diarrhœa prevails, gives one ounce of chloride of lime and one drachm of opium. To prevent constipation following, give bran mashes and other laxative food, and if this treatment does not prevent too sudden a check to the looseness, give two or three ounces of salts daily. Dissolve the opium in water

Another. Make an infusion of half a pint of cedar berries in a quart of water, and give it as a drench. A considerable discharge from the bladder and bowels will follow and give relief, and a cure often follows. In severe cases, it may be necessary to repeat the dose four or five times.

Another. Boil half a pound of garget root, poke berry, (*Phytolacca decandra,*) in two quarts of water, to one quart, and pour it down when warm. Repeat once a day, till cured. It may be well to give this in two doses, with an interval of a few hours, as very powerful decoctions have killed animals.

Another. Melt one pint of fat; add one gill of tur pentine and half a pound of sulphur. Stir till thin, and turn it down the throat.

Another. Bleed freely, in the first stages, and give a liberal supply of salt.

Another. Give soot and salt.

Another. It is said that a few doses of sugar, one pound each, have cured in severe cases. Give with a plenty of warm water.

Murrain in Man. A man, in skinning a cow that died of the murrain, cut a little gash in his hand; it swelled up immediately, and caused his death. Two pigs that ate the flesh of the cow died also. Another man, who assisted in skinning the cow, had a scratch or pimple on his hand, to which the matter was communicated, and his situation became critical.

In England, this disease is considered not merely an epidemic, but infectious; this is the general opinion of veterinary surgeons throughout the country; consequently, the well cattle are separated from the affected One gentleman caused the cows on his estate to be inoc

ulated with the *vaccine virus*, (pus,) which appeared to operate as a preventive; for although his neighbors' cows were dying around him, not one of his — seven in number — evinced the slightest symptoms of murrain.

In Europe, this plague has prevailed occasionally for thousands of years, and frequently with great malignity. In the spring of 1714, more than 70,000 cattle died of this disease in England. In 1745 it made a second sad visitation in Holland, and destroyed 200,000 cattle. In 1747, 40,000 in one county, and 30,000 in another county, in England, died of this pest, in one year. Last summer and fall it was very fatal in some parts of England and Scotland. Two cow-feeders in the vicinity of Glasgow lost 500 cows. Some lost their entire stock. This disease originates from various causes; the animals are variously affected, and, of course, the symptoms and remedies vary. Several disorders are classed under this general head.

RED-WATER, OR BLOODY MURRAIN.

This disease, in some respects, as to causes, symptoms, nature, and remedies, resembles that last described, and they are, in some cases, evidently blended together. Red-water is of two kinds, *acute* and *chronic*. The causes are different; they have their seat in different organs, and the symptoms and remedies vary. Yet some writers comfound and blend them together.

ACUTE RED-WATER.

Causes. Cows in too high condition are subject to his disease a week or two before calving, and, at other times, a few days after calving, when they have not been cleansed well, and have not had any purgative, which should always follow parturition in animals of high condition. Owing to the redundancy of blood, it is strongly determined to the womb, and the kidneys participate in this inflammation, and, by unusual secretions, throw off the redundant blood in the urine. It is also caused by external injuries, such as severe blows in the region of the kidneys, and violent bruises about the loins, from

the ramping of animals. The over-driving of oxen causes inflammation of the kidneys. It is sometimes caused by atmospheric influence, and by moist, swampy pasturage.

Symptoms. The first evident symptom of this disease is generally the discharge of bloody urine, but it is usually preceded by dysentery, which is changed to obstinate costiveness, and as soon as costiveness is established, red-water appears. Other symptoms are, feverishness, shivering, succeeded by increased heat, laborious breathing, dry muzzle, heaving at the flanks, ceasing to ruminate, bowed back, cold extremities, hot mouth, tenderness of the loins, straining to void urine, which is in small quantity and expelled by force, highly tinged with blood, and sometimes it is almost pure blood. It often runs its course with fearful rapidity. Sometimes the animal dies in a few days; at other times, she continues ten or twelve days.

Treatment. Bleed or sweat very early. This will reduce the action on the kidneys. Then give physic. If the physic does not operate in due time, back-rake; give clysters — exciting ones, if necessary; repeat the physic in partial doses, of a different kind, if convenient, and give with it sage, pennyroyal, or other warming herb tea, and a little ginger.

Another. Bleed or sweat, give six ounces of salts, one ounce of saltpetre, six ounces of linseed, castor or olive oil, in one pint of whey or gruel.

CHRONIC RED-WATER.

This is most common in cows of weak constitutions, and in calves. In its first stages, it is far more a disease of the digestive organs than of the kidneys. The following causes are assigned: relaxed vessels; thin blood; cold; change from poor to rich pasture; luxurious pasture for cows recently dried, and scarcity of water in a long, dry summer. Some of these are only secondary causes, and there are doubtless various other primary causes, among which is the want of exercise.

Symptoms. The urine is of a brown color, or brown tinged with yellow. The beast feeds nearly as well as

before, but ruminates more lazily. In few days a natural diarrhœa comes on, and then the animal is well again; or a purgative is given, and a cure is soon effected.

At other times the animal is dull, heavy and languid, the ears droop, the back is bowed, she separates from the herd, refuses food, and ceases to ruminate. Again she is better, and then suddenly changes to worse; the urine assumes a dark color, resembling foul coffee or porter; it increases in quantity, and is sometimes discharged with difficulty and in little jets. The milk diminishes, and acquires a tinge of yellow or brown, and the taste is unpleasant. The pulse is accelerated to sixty or seventy beats a minute. The skin is yellow, but of a darker yellow than in jaundice; it has a tinge of brown. The urine becomes of a darker hue, and is almost black. Sometimes the animal shrinks when the loins are pressed, but not usually, nor so much as in acute red-water. There is loss of condition and general debility, and the legs and ears are cold. In every stage there is costiveness very difficult to remove, yet generally there was violent diarrhœa at the beginning, which suddenly stopped. The dark color of the urine is caused by vitiated bile, not by blood, as in acute red-water.

An examination, after death, shows that the contents of the *maryplus*, or third stomach, are perfectly dry and almost as hard as though they had been baked. This is doubtless the disorder which many farmers call *dry belly-ache;* and some call it dry murrain. The liver is inflamed, and darker than usual; the gall bladder is full to distention, and the bile is thick and black. These circumstances show that the seat of the disease is in the liver, and that the gall is obstructed in its passage to the intestines; and indigestion is the result.

Remedy. As in this disease constipation of the bowels is generally obstinate, back-rake, and give an exciting injection; then give a good dose of physic, with ginger, or other stimulant, and if there be no operation in six or eight hours, repeat, in half doses, and continue mild injections occasionally, until an operation of the physic. Give also warming teas, such as sage, peppermint, &c

Feed on laxative food, and give astringents, as for jaundice, to restore the digestive organs to their usual tone and action. We think that ashes and cider would be excellent. [See pages 118 and 119.] Saltpetre, in doses of an ounce, is good. Change the food, and remove all cause of disease. Small doses of sulphur are good.

Another. Take milk, and bring it to a curd with rennet; mix it with ash leaves and nettle seeds chopped fine. Give it in food, or put it down the throat.

Another. Give a junk bottle full of train oil. This is recommended for dry murrain.

BLACK LEG, OR BLOOD.

This disease is also called Quarter Evil, Black Quarter, and Blood Striking. It is mostly confined to young cattle, between one and two years old. But some of three, four, and older, have been attacked with it. Cows giving milk, and lean cattle, generally escape. It is most common in the spring or early summer, when the feed is luxuriant, and in the fall.

Cause. Very high feed, by which the animal improves too fast, producing a redundancy of blood and powerful inflammation. It is most likely to attack animals suddenly changed from poor to high feed. In England, it is sometimes produced in winter by high feeding on turnips. It prevails most in low, marshy pastures, and in woodlands. Fatigue and exhaustion from long journeys, previous to high feed, is a cause. Owing to the general use of highland pastures in this country, this disorder is not so common here as in Europe. Acrimonious or poisonous plants and unfavorable atmosphere are influences, but are not the principal causes.

Symptoms. Dry muzzle, hot breath, protruding eyes, extension of the head; heaving of the flanks; quick and hard pulse, and every symptom of high fever. He moans lowly; is half unconscious; wild; stands for hours motionless, or only moves by compulsion; there is a peculiar staggering in the hind limbs, and in one more than the other. He shifts his weight from one

foot to the other; paws, and lies down. He may rise, and then drop down again. Sometimes there is swelling on the back of the loins, over one quarter, which at first is hot, tender, and firm; but it soon yields to the touch, and makes a crackling noise. One of the limbs enlarges, and sometimes enormously, through its whole extent. This limb is also first hot, tender, and firm, and then it becomes soft and flabby. Large ulcers break out on this limb, and become mortified, and large pieces slough off. The breath produces a horrible stench, and sometimes bloody fluid runs from the mouth; the urine is high-colored or bloody, and the fæces are streaked with blood, and intolerable in stench. In so bad a state, the animal generally dies suddenly; but with early good treatment, some recover.

Preventive. From what has been said of the causes, the management, in order to prevent this disease, is very evident. When animals are in rich feed, and thriving too rapidly for health, a dose of physic, now and then, will be a good preventive. When this disease breaks out in a herd, physic, and remove to poorer feed, all the well cattle that have been exposed to the same causes.

Remedy. If the disease be known on the first attack, bleed copiously. But do not bleed after it has advanced. Soon after bleeding, give physic, with ginger, or some aromatic. In case of constipation or other cause, if the physic does not operate, give injections, and repeat half doses of physic. After the physic operates, give a fever drink, morning and evening, as follows: — tartar emetic, one drachm; powdered digitalis, half a drachm; saltpetre, three drachms; mix, and give in a quart of gruel. Or give a strong decoction of raspberry tea, two or three quarts, according to the size of the animal.

At the first attack, foment the parts most affected, several times a day. Feed very lightly, on scalded bran mashes, &c. When the fever subsides, and the animal revives, omit the fever drink, unless it be mild, like the tea. Give, for awhile, mild tonics and loosening food. It would be well to put a seton in the dewlap, at the beginning, first rubbing it in blistering ointment; and

bathe the affected parts in warm vinegar, saturated with salt. If ulcers appear, apply chloride of lime in a poultice of roasted carrots.

The Putrid Sore Throat is doubtless a variety of this disease, in which the throat is the part most severely attacked. In this case, in addition to the other treatment, apply to the throat internally some astringent wash, to allay the inflammation, and externally blistering ointment, to invite the blood outward. Give soft food, such as scalded mashes, and gruel; and if the animal cannot drink, turn a little gruel down gently. Sometimes the sore throat may be regarded as belonging more properly to the blood murrain, as it is at times a symptom of that disease.

INFLAMMATION OF THE BLADDER.

This disease is not common in cattle, excepting from eating poisonous or acrid plants, or when cows are near their calving. Sometimes there is an inflammation of the neck of the bladder, from cold, or from eating hot and stimulating plants, in pasture, (the *broom*, in England, often causes it,) which causes a stricture, and prevents the urine escaping.

It is important to distinguish between inflammation of the neck of the bladder, and that of the bladder itself. When the neck is affected, no urine will be discharged in the early stage of the disease; but when the bladder is inflamed, it will be discharged in large quantities, and more frequently than usual. And when at length, urine is voided, in case of inflammation of the neck of the bladder, it is after much straining, and forcibly squeezing it out from the closed but distended vessels. The most certain way to determine is to put the hand into the rectum, and if the neck of the bladder is affected so as to obstruct the passage of the urine, the distended bladder may be plainly felt under the hand.

Remedy. If the neck of the bladder be inflamed, it must be relaxed, or there will be danger of the bladder's bursting. Sometimes, liberal bleeding will effect this. Then give sulphur, or other physic that has no diuretic quality. Give injections into the anus, which

may have a good effect from their being in the vicinity of the disease; and fomentations should be used freely as nearly as possible to the part affected. If these means fail, a cow could be relieved by a catheter; but with the ox it is difficult, more so than in the horse, owing to the double curvature of the penis and urethra. It requires skill and experience. Some make a cut at the bend of the urethra, and introduce a catheter; but this wound is difficult to heal. The hand may be put into the fundament, and the urine gently pressed out.

When the bladder itself is inflamed, which is more common, bleed, physic, foment across the loins, and carefully avoid diuretics. Clysters are good. After the operation of the physic, give the following: — Antimonial powder, two drachms; powdered opium, one scruple; rub them together with a small portion of thick gruel, and repeat morning and night. Sometimes the peculiar situation of cows near parturition causes an irritation of the bladder, which will cease after calving. [See pages 132 to 138, and for inflammation of the kidneys, see page 217.]

STUB COMPLAINT.

A sandy substance collects in the sheath, where the water escapes, and the disease gives pain whenever the ox passes his water. Cleanse the part affected, with soap and warm water, and then apply a solution of sugar of lead, or alum, or a very strong decoction of raspberry leaves, or other astringent.

INFLAMMATION OF THE SHAPE.

Sometimes the external parts of a cow become inflamed, and there is a discharge of glairy fluid, and occasionally pustules about them that break and discharge matter. This may occur from difficult calving, or from taking cold after easy and natural calving. It sometimes occurs at other times, from causes not well known. The cow, in such cases, suffers greatly by the irritation.

Remedy. In very severe cases, bleed or sweat at first. Give physic, and if there be costiveness, give injections. Foment the shape several times a day, in a strong astringent tea, as beech bark, raspberry, or barberry, and continue it till the inflammation abates. In three or four days, it may be necessary to repeat the physic. Give light food, and protect from exposure. If gleet continue to run after the swelling has abated, and the ulcers healed, astringent injections into the parts affected will be useful. Vegetable astringents are more soothing than alum or other mineral preparations.

BONE DISORDER.

This disease has prevailed some ten or twenty years in some sections, and long before that time it existed in a milder form. It is common only to milch cows, and they recover on becoming dry.

Cause. A want of bone earth, or phosphate of lime, and carbonate of lime, necessary to support the common wear or decay of the bones. Milch cows require so much of the phosphates as constituent parts of milk, that there is not enough to repair the gradual waste of the bones; hence the weakness and disorder that ensues, which may be called the *bone disease*. This disease is common to old sections only, as, by a long course of cropping, the bone earth is exhausted, and those grasses and other food containing little bone earth only are produced.

One hundred parts of bones contain thirty-eight parts of phosphate of lime, and ten parts of carbonate of lime; and it has been ascertained that twenty gallons of milk contain one ounce of lime. Cows pastured constantly on land will carry off in their milk, one ton of bone earth from an acre, in seventy-five years; hence a deficiency, and this disorder.

Symptoms. Weakness in the bones; falling in of the sides; loss of appetite; dulness; general debility, and desire to eat bones when cows can have access to them.

Preventives. On old lands use bone dust or ground bones, guano, lime, and plaster for manure, and then cultivate those grasses and plants generally, for cattle

food, which take up largely the bone earth, or phosphates, in such manures. Clover contains more lime than other grasses, and it readily takes it up from plaster. Oats contain more lime than other grain. Ruta-bagas abound in lime and phosphoric acid. Many pastures and mowing fields may be greatly and cheaply improved by plaster, and for many crops, especially on old lands, bones are a good manure.

Remedy. Bone meal given in food, about a pint at a time. Some soften bones by soaking in a lye of wood ashes, and then give them to cows. Seven pounds of good sulphuric acid, diluted in two or three times the quantity of water, will dissolve a bushel of ground bones. Dilute half a pint of this in water, and sprinkle it on the fodder, or mix with meal or grain. Care should be taken that the bones used for medicine be pure, not filthy from putrid animal matter, as they may be unhealthy, and impart bad taste and impurities to milk. Chalk is good, as it is a carbonate of lime. Give it pounded, and mixed with food, or lay large pieces where cattle can lick them; but consider that it is astringent, and use laxative food. During medical treatment, use, as an auxiliary, food that contains much lime, as clover, oats, potato tops, &c.

TO PREVENT A COW SUCKING HERSELF

Put on a girth as tight as may be with comfort. Put straps or lines on each side the girth, and carry them upon the sides of the neck, and fasten them on the sides of the head, to a strap. Put one strap around the lower part of the neck, and another near the upper part, and fasten these straps on each side to the straps that extend up from the girth, to keep all in their place. If well fitted, a cow cannot turn her head round far enough to help herself to milk.

KICKING AND REFRACTORY COWS

Place a kicking cow in a stall, with a beam over head; fix a rope round her horns, throw it over the beam, and pull away till her head is pretty well elevated, but not so as to injure her. In this position she cannot kick, and will give down her milk. If a cow be refractory, tie her to some place so that you can rub her all over; then salt her from your hand; feed her from your hand, on half feed, and in three days you may do as you please with her.

TO CAUSE A COW TO GIVE DOWN HER MILK.

Sometimes cows refuse to give down their milk, for days together, from the loss of their calves, contrariness, or other cause. This is liable to injure their health Deal gently with them, and sit down and perform the operation upon the teats precisely as though the milk flowed. Persevere, and it will come after a while. In this way, a boy nine years old milked cows which others could not. It is doubtless an effort of the cow to hold up her milk, which soon tires, and she yields to nature after a short restraint.

FOR COWS DRYING UP SUDDENLY.

A cow that dried up suddenly produced a return of milk in a short time after administering an ounce of saltpetre in a quart of meal. Diuretics tend to a flow of milk.

ANOTHER. Give to the cow, two or three mornings in succession, two cubic inches of garget root, [see page 199,] cut up fine. It is said to be effectual.

ANOTHER. Put a young calf to the cow; and as an auxiliary to any other means that may be used, feed with grass, green corn, roots, apples, melons, pumpkins, or other succulent food that tends to a flow of milk.

DRYING UP A COW.

Pour two quarts of soft water on a fresh rennet bag; boil it down to one quart; strain it, let it cool sufficiently and give it to the cow, and she will generally be dry in a few days. If she will not drink it, it may be turned down her throat.

Another. Take an ounce of powdered alum, boil it in two quarts of milk till it turns to whey; then boil in this whey a large handful of sage, till it is reduced to one quart; rub the cow's udder with a little of it, and give her the rest to drink. First milk her clean, and afterwards draw a little milk every second day, lest the udder become overcharged. Repeat the dose and operation if necessary.

If the bag be full of milk, and it be hot and inflamed, milk her and repeat the astringent dose.

PERFORATING COWS' DUGS.

It sometimes happens that when cows calve their teats are hard and knotted, and the passage through them becomes impervious, and they consequently give no milk.

Remedy. Make a small skewer of whalebone, or of smooth hard wood, anoint it with goose grease, or other soft grease, and force it up the dug; take it out daily and anoint it, and do this till it heals round the skewer. This course is attended with success.

ABORTION, OR SLINKING CALF.

"This is most probably occasioned by tying up cattle and feeding them on bad hay or stale grain, and should, therefore, be prevented by pursuing a better method. Feeding on unwholesome food, with want of exercise, occasions indigestion and flatulency, and this probably so disturbs the young calf in the uterus, as to cause either abortion, or such an alteration in its position as to render delivery difficult, and often impracticable

When a cow slips a calf, and anything offensive is left in the field, all pregnant cows smelling it are liable to the same. Everything that is of an offensive smell, especially putrid flesh or blood, should always be carefully removed. In Gloucestershire, they suffer the cows to eat the afterbirth, and it is supposed to be useful." — *White's Cattle Medicine.*

The cow is more subject to abortion than any other domestic animal. Besides the causes enumerated above, there are various others, and sometimes the cause is hard to trace. A very severe blow on any part of the body, or even a light blow on the nose, is liable to produce it. Various diseases, that are incident to cattle, may cause it. Bad water is often a cause. A farm in England had been given up by three farmers, successively, on account of losses by abortion. The cattle drank of a stagnant pond, impregnated with dung and urine. Wells were then dug, the pond fenced up, and abortion disappeared. Violent exertion, as well as the other extreme, inaction, is a cause. The extremes of starvation, and plethora from luxuriant pasture or high feeding, are causes; also the extremes of exposure, and a close, hot stable. Anything that seriously affects the comfort or health of the animal may produce it. Sometimes it seems to be infectious, as when one cow in a herd miscarries, others are soon affected, and it often runs nearly through the whole herd. In this case, it is supposed to be caused by the odor produced. [See page 44.]

Cows are most liable to *slink* their calves about the middle period of gestation. If, about that time, a cow is uneasy, feverish, off her food, or wandering about for something for which she seems to have a *longing*, or most greedily and ravenously devouring some particular kind of food, she should be physicked immediately. Give a pound of Epsom salts, and half an ounce of powdered caraway seeds, or a table spoonful of ginger. Give warm drink till after the operation of the physic; then give two to four quarts of raspberry tea, or other sedative and anodyne medicines, and feed moderately.

Preventives. Attend to numerous directions given in this work for the preservation of health. Avoid all

extremes in feeding, exercise, heat and cold; give pure food, water and air, and keep the bowels open by roots, bran, shorts and oil meal; attend to currying and rubbing; manage with kindness, gentleness and discretion, or *common sense.*

MANAGEMENT OF COWS BEFORE CALVING.

Great evils may befall the cow which cannot be remedied; therefore prevent them. During the first of the season that the cow is going with young, she should be pretty well kept, for she has to provide nourishment for her young, and a supply of milk for the dairy; yet the feed should not be very high; she should be kept only in good condition.

It is better for the calf, and it is generally better for the cow, as she needs a little respite to recruit her, and it is better for the udder, that she go dry as long as six or eight weeks; and during a short period previous to calving, the milk is of an unnatural taste, and inferior quality. Many cows go dry longer, even three, four or five months. Three months is not an unusual time, and there can be no great objection to it, when milk is not much wanted in the family. But if a cow goes dry a long time, she is more liable to indurations and other affections of the udder.

If she is kept pretty well before going dry, her feed should then be reduced, or it should be less rich; for being too fat and full of blood at the time of calving, is frequently the cause of difficult labor, garget, milk fever, and sometimes death. High feeding and consequent plethora is worse than starvation and its concomitant poverty.

After the cow is dry, she should not have many roots, apples, pumpkins, or any food that produces a large flow of milk, lest the bag become too much distended before calving, and the udders become indurated or caked, and garget and other diseases follow in their train. But feed a very few roots, as they tend to keep the bowels open, and are conducive to general health. The best are carrots, as they tend to keep up a pretty good condition, and

cause less flow to the lacteal secretions; and the richness of the carrot, as to causing too high condition, can be counteracted, if necessary, by moderate keeping in other food.

Wheat bran, or shorts, is a very good light laxative food, and may be given without fostering too high, or tending much to milk. Some straw, of a pure quality, may be given, when the cow is becoming too fleshy on hay. When at grass, if she is becoming fat, put her into a pasture where the feed is not very luxuriant. But give tolerably good keep.

It is better for cows to calve without a very full udder; yet with precaution, and especially when they calve in summer, amidst full feed, their udders become distended almost to bursting before calving. In such cases, the cow should be milked, and she should be pretty well fed, in order to sustain this unusual draught and her young at the same time; but the food should be dry, and such as does not produce much milk. Be careful and not produce costiveness by too much dry food, but give shorts, &c.

MILKING COWS BEFORE CALVING.

Sometimes, from high feeding, or from rich pasturage, heifers and cows have their udders so distended with milk before calving, that there is much pain and great danger of matter forming in them, and causing them to *break*. Therefore, it sometimes becomes necessary to milk them before calving. When running in luxuriant pastures, and they calve in summer, it is often necessary to milk them a few days, and occasionally a week or ten days, before calving. Sometimes it has become necessary to milk a cow regularly two or three weeks before calving, and no injury seemed to result from it.

It is stated in the "Tennessee Agriculturist," that a Durham heifer was affected in this way previous to her having the first calf. It commenced nearly three months before calving, and it gradually increased for about two months, when the udder was enormously swollen and inflamed. She was then milked, and gave sixteen or

eighteen quarts a day until she calved. The calf found the udder in a fine condition.

MANAGEMENT AT CALVING.

A short time before calving, turn the cow loose into a pen or room by herself, that is level and dry. She should be seen to frequently, but in such a way that she shall not think that she is watched, as in such cases animals seek retirement. We copy the following from Clater, the distinguished English veterinarian:

"The usual symptoms of the approach of calving are uneasiness, slight lifting of the tail, lying down and getting up, the evident labor-throe, gentle at first, and increasing in force, and the commencement of the protrusion of the membranes from her shape. The still earlier symptoms, and preceding the labor by a few days, are enlargement of the udder, and redness of the space between her shape and the udder.

"The labor having actually commenced, the membranes will more and more protrude, until they break, and the fluid by which the calf was surrounded will escape. If her pains are strong, the cow should for a while be scarcely meddled with; but if an hour or more elapses, and no portion of the calf presents itself, the hand, well greased, should be introduced, in order to ascertain the situation and position of the calf. The natural position is with the fore feet presenting, and the muzzle lying upon the fore legs. If the fœtus is found in this position, and advanced into the passage, some time longer should be allowed to see what nature will do; and the strength of the animal may, if necessary, be supported by some gruel, with which a pint of warm ale has been mixed, being horned down. As soon, however, as the throes begin to weaken, and before that, if no progress has been made, manual assistance must be rendered.

"Here it will be recollected that there are two objects to be accomplished, — the saving of the lives of both the mother and the young one, — and that, consequently, the means at first employed should be gentle. The hand

should be introduced, and the fore legs of the calf laid hold of and drawn down, the efforts of the operator being employed at the moment of the throes of the mother. If the legs are brought forward a little way, care should be taken that the head is accompanying them. The hand will sometimes be sufficient for this purpose. If the head cannot be moved by the hand, a cord must be procured with a slip-knot at the end, which is to be passed carefully into the passage, and, the mouth of the young animal being opened, fastened round his lower jaw. The end of this must be given to an assistant, who should be instructed to pull gently, but firmly, at the moment of the throes, while the principal operator is endeavoring to draw on the feet.

"Should not this succeed, it will appear that, either from the narrowness of the pelvis, or the size of the fœtus, there will be difficulty and danger in accomplishing its extraction. The operator must then begin to think less of the safety of the calf, and endeavor to secure that of the mother. Two other large cords or ropes must be procured, and one fastened round each leg. The service of two assistants will now be required. One should pull at the head, and the other at the feet, while the operator ascertains the progress that is made; too much force, however, should not immediately be used, for the chance of saving the young one must not yet be given up. This not succeeding, greater power must be applied, until the assistants begin to use their full strength, pulling steadily, and with the pains of the cow, if they still continue.

"In the natural position of the calf, the young one is almost uniformly extracted by these means, and its life is preserved; for both the mother and her progeny will, without serious injury, bear the employment of more force than would by some be thought credible. When the womb is unable to discharge its contents, and the throes are diminishing, or perhaps ceasing, much benefit may be derived from the administration of the ergot of rye, which appears to act as a stimulus specifically on the uterus; two drachms of this medicine, finely powdered, may be given in a pint of ale, and repeated seve

ral times, if required, with intervals from half an hour to an hour.

"The fœtus is not, however, always presented naturally, and it is the duty of the operator to ascertain its exact position in the womb. This he will not find much difficulty in accomplishing.

"The most usual false position is the presentation of the head, while the feet of the calf are bent and doubled down under his belly, and remain in the womb. A cord must be passed as before around the lower jaw, which is then to be pushed back into the womb. The operator now introduces his hand, and endeavors to feel the situation of the feet. He is generally able to find them out, and to fix a cord round each pastern, or at least about the knee, and then he can usually bring them into the passage. The head is next to be brought forward again by means of the cord; and, the three cords being afterwards pulled together, the fœtus is extracted. Should the calf have been long fixed in the passage, and be evidently much swelled, it is certainly dead; the head may then be opened, in order to lessen its bulk, and the extraction accomplished as before.

"When the feet present, and the head is doubled under the rim of the passage, the case is more difficult, and the calf is very rarely saved; indeed, it may be reckoned to be dead if it has remained in this position for any considerable time. Cords are first to be placed round the feet; the hand must be afterwards passed into the womb, and the situation of the head exactly ascertained, and the cord passed round the lower jaw. The calf being then pushed further back into the womb, the head must be brought into the passage, and, the three ropes being pulled together, the delivery effected as quickly as may be, without the exertion of more force than is necessary.

"The last false presentation I shall mention is that of the breech, the tail appearing at the mouth of the shape. The hand is to be passed into the uterus, and the cords fastened round each hock. The calf is then to be pushed as far back as possible into the womb, and the hocks, one after the other, brought into the passage, the ropes

being shifted as soon as possible to the fetlock. With the exertion of considerable force, the calf may now be extracted, and sometimes without serious injury.

"By studying these cases, the operator will be enabled to adapt his measures to every case of false presentation; and they are numerous. Great force must sometimes be used to effect the extraction of the calf. The united efforts of five or six men have been employed, and (although such practice can scarcely be defended in any case) a horse has sometimes been attached to the cords. The fœtus has been necessarily destroyed, but the mother has survived; too often, however, she has evidently fallen a victim to this unnecessary violence. If by the united force of two or three men, the fœtus cannot be brought away, any ruder and more violent attempt must always be fraught with danger, and will often be fatal. The safer way for the mother, — yet that is attended with considerable risk, — is to cut off some of the limbs of the fœtus. One or possibly both shoulders may be separated, *slipped*, and then the head and trunk may, without much difficulty, be brought away. The knife must be one that can be concealed in the hand, and that is hooked at the end, and rounded and thick at the back; but, notwithstanding that, there is much danger of wounding the womb, which is forcibly pressing on the hand of the operator.

"Labor is not unfrequently prevented by the diseased state of the entrance or neck of the womb, which becomes hard and scirrhous, and thus prevents the calf escaping. When this is found, by examination, to be the case, an operation should be performed, which consists in dividing the contracted entrance by means of a small knife passed up, protected by the hand and fingers. Considerable care must be exercised, so as not to cut too deeply; and it is better to divide the stricture slightly in several places.

"From the violent efforts of the cow, or from unnecessary artificial violence, the uterus, or *calf-bed*, may protrude, and be absolutely inverted.* The case is not

* *Falling of the withers* is a general term among farmers to denote this condition. The womb is protruded and completely turned inside

desperate. The part must be cleaned from blood and dirt, and supported by a sheet; then, the operator beginning at the very fundus or bottom of the womb, it may be gradually returned by the union of some little ingenuity and a great deal of patience. The animal should be copiously bled before this is attempted, in order to relax the passage; and the application of cold water for a considerable time may contract the womb itself, and render its return more easy. A stitch or a couple of stitches should be passed through the lips of the shape, in order to prevent a repetition of the protrusion, and the following anodyne draught administered:—Take powdered opium, half a drachm; sweet spirits of nitre, two ounces. Rub them together, adding the fluid by small quantities at a time, and give the mixture in a pint of warm gruel.

"If the cow has calved unseen and unattended, she will, like every other quadruped, set diligently to work to devour the cleansing, and lick the new-born animal clean. This, however, is often carefully prevented when there is the opportunity of so doing. The calf is taken immediately away, and the cleansing thrown on the dung-heap. We act contrary to nature in this. She would not have given to herbivorous animals this propensity to eat the placenta, had not some useful purpose been affected by it. Cleanliness was one object, the next was either to support the strength of the animal, or to have an aperient or salutary influence on her. The

out. In returning it, the fist is applied to the extreme outer or lower part, as you would apply the hand outwardly to the toe of a stocking that is *inside out*, to turn it *outside in*. The protruded parts should be cleansed in warm water; and if they have been out long, and become inflamed, as is sometimes the case, from neglect, foment them some time in a warm decoction of raspberry leaves, or of white oak, beech, yellow birch, black cherry, barberry, sweet apple-tree bark, or other astringent. The operator should perform very gently in returning the *withers*, and having done this, and taken a stitch of strong twine across the vulva, the application of cold water will produce a contraction of the parts. Then place the cow with her fore feet the lowest, and so that she cannot lie down for a day. Give gentle physic of thoroughwort tea, or salts, and gentle astringents to allay inflammation, as raspberry tea, &c. It would be well to let the cow go farrow one year, that the parts may become firm.

mother and the young will be happier if they are left to pursue the dictates of nature. Many a cow has fretted herself into a fatal fever from the sudden loss of her little one, and many a calf has died from the neglect of that cleanliness which the mother could best effect.

"A great deal has been said of the necessity of cleansing the cow after calving, or the removal or expulsion of the placenta. There is much error in this. The placenta comes away with the calf;* and it is that natural discharge from the womb, continued during several days, and which is observed to a greater or less extent in all quadrupeds, that gives the notion of anything being retained. Medicine, nevertheless, is necessary in order to prevent that access of fever to which the cow in high condition is liable; but that medicine should be administered, not in the form of a stimulating cordial, from the false supposition that the animal wants support after the fatigue and pain it has undergone, but in that of a purgative, in order to prevent an attack of fever, to which the animal is so naturally exposed after parturition, and which is so often hastened and aggravated by absurd management. The mother requires little care after calving, except that of protection from too great severity of weather."

* This remark is not correct. The placenta or "clearings" *generally* come away *soon* after the calf; but sometimes, owing to a contraction of the neck of the womb, or the placenta adhering to the inner surface of the womb, it does not readily come away; and it soon acts as a foreign body, producing irritation and fever; and it will rapidly become putrid and noisome. Yet, in some cases, it has been retained seven or eight days, without serious injury. In these difficult cases, give no powerful stimulants. Give a dose of thoroughwort tea, or one pound of Epsom salts, with two drachms of ginger in addition to either dose, a few hours after calving, which will have a favorable effect in this particular, as well as on the general health of the animal. [See next page.] Some tie a weight of six or eight ounces to the cord, the action of which may separate the placenta from its adhesions.

Sometimes it adheres so firmly to the surface of the womb that it is retained till it becomes putrid, and the hand must be introduced to separate it in the gentlest manner possible, else dangerous inflammation will follow. Sometimes, when there is an inversion of the womb, or "falling of the withers," the placenta is found adhering closely to the then outer part of the womb, and should be very gently separated, before the womb is returned.

MANAGEMENT AFTER CALVING.

We give separate articles on the important subjects of the Placenta and Biestings. Be careful and not give cold water after calving. The following is excellent: Throw a few embers into a pailful of water. This will warm the water, and the slight alkaline quality will be good. It is much better to give warm water for several days. If a cow be in a high condition, or tolerably high, it is best to give a dose of mild physic. To guard against fever and garget, it would be well, in all cases, to give a gentle laxative. For a few days feed lightly. Warm mashes are excellent. Do not feed largely, even on hay, but if she be greedy after food, give some good straw. If a cow be weak and exhausted, after calving, give herb drinks, as warm as can be borne, and warm gruel, for nourishment. Thoroughwort tea is excellent, as it serves as a stomachic to warm and strengthen the bowels, and as a good physic. If the cow be weak, do not give a strong dose of physic, yet a large quantity of tea will have a favorable effect. Dr. Holmes, whose excellent authority we have occasionally quoted, informs us that he had a heifer that was exhausted in her efforts in giving birth to her young. She was cold in the extremities, and unable to stand. He gave her a gallon of thoroughwort tea, as hot as she could bear. In a few minutes she revived, rose up, and immediately discharged the afterbirth, or placenta. This immediate effect was owing to the heat in the liquor.

When a cow is so exhausted that she cannot rise, she must be assisted in rising, and moving round a little, if possible, or fastened up awhile, by sacking or wide straps, else she will soon lose the use of her limbs. Cows that calve in March, or during cool weather in April, often suffer by standing out exposed to cold winds, and still more when standing in deep mire or manure. Kind and gentle treatment, and great care and attention, are necessary at this critical period; and well does this highly useful and bounteous animal deserve these favors from those whom she nourishes and supports, and their chil

dren also. Her rich treasures are divided between them and her own offspring.

COWS EATING THE PLACENTA.

The general practice in this country, in New England at least, is to prevent cows from eating the placenta, after-birth, or cleanings; but some intelligent managers of stock allow cows to eat it, and this is the general custom in England; and, as it is in accordance with nature, the vigilance of man cannot always prevent it. We have known many instances of cows eating the after-birth, and never had reason to suppose that any injury arose from their following the dictates of nature. It is supposed to have some salutary medicinal effect. Some apprehend danger from cows choking themselves in this way; but we have no account of an instance of the kind, and it has been remarked that there is no more danger of this than of a tobacco-chewer getting choked with his quid.

GIVING COWS BIESTINGS.

Numerous cases are mentioned in which cows have been injured by drinking biestings, or first-drawn milk after the calf has sucked, especially when they gave a large mess. In some cases it has proved fatal. In one case an examination was made, and the milk was in the manifold; "it had shut those parts close together, so that nothing could pass." Giving a cow her milk is unnatural, and it is very rich food for an animal in a weak and delicate condition.

Lovett Peters, Esq., of Westborough, a farmer of long experience and nice observation, offered to the public, through the "Massachusetts Ploughman," several articles against giving cows biestings; he was supported by a number of farmers, who showed its injurious effects On the contrary, several intelligent farmers gave instances of cows drinking biestings without injury. The safer way is to avoid this unnatural course.

SORE TEATS AND UDDERS.

Sometimes, before calving, and more frequently after, the teats and udders are swollen and sore, otherwise than the internal inflammation called garget.

Remedy. Foment the parts affected with warm water, or warm soap suds, and in severe cases foment long and often with some astringent tea, as beech, barberry, or raspberry. Or use one of the last two recipes on page 53. After the parts are dry, apply a cooling ointment.

MILK FEVER, OR DROPPING AFTER CALVING.

This disease is most common to cows in high condition, and in the hot season. The cows that have large, full udders some time before calving, are most liable to be attacked with this disease. It generally appears about the second or third day after calving; occasionally she is down a few days after calving, and is seldom able to rise for several days.

Symptoms. Refusing food; looking dull and heavy; restlessness; lowing; nose dry and hot; tongue frequently protruded; eyes wild and staring; the udder swelled and inflamed; the secretions of milk suspended; weakness; staggering; heaving of the flanks; weakness of the loins, and every symptom of fever. Palsy soon steals over the whole frame, and she falls.

Treatment. Bleed freely, and give a pound of Epsom salts, and give aromatics, such as ginger or herb teas. Half an ounce of saltpetre and a pint of linseed oil are good to give with the salts. If there be much fever, treat as for that complaint, and feed with mashes, and light food generally. Get her up as soon as possible.

GARGET.

This disorder attacks the udders of cows, particularly young ones after their first calving, or cows in high condition. The internal part of the udder becomes inflamed, generally in one part at first, but if not relieved, it often

extends to the whole bag; it becomes tender, much swelled, and feels hard and knotty. The milk coagulates, and is drawn off in thick masses, often bloody.

Causes. Too high feeding; allowing the cow to get dry too long; not drawing off the milk when the bag becomes full before calving; humors in the system that collect at this tender place; and taking cold.

Preventives. Mr. Fisher, of the State of New York, in his prize essay on dairying, in the "Albany Cultivator," recommends giving each cow, while dry and with calf, a table spoonful of sulphur weekly, to prevent garget; and Mr. Jenne says, in the "Maine Farmer," that he has used it with satisfaction; and he names several cases in which this disease was not produced by a great flow of milk, but indurations or cakes in the bag. Put tar on the noses of cows, and on their heads, between the horns, in March and April.

Remedy. In very severe cases, the surest and most speedy remedy is bleeding and physicking, giving light food and cooling drinks. This has an immediate effect.

Another. Many farmers in New England cure with the root of garget, or pokeweed, (*Phytolacca decandra.*) In mild cases, it is sufficient to give cows some in their food; and, in severe cases, a piece of this root is put in the dewlap, as a seton. In bad cases it is too slow.

Another. Give saltpetre. An ounce is a common dose, but, in severe cases, two ounces have been given.

Another. The "Genesee Farmer" says, a dairyman cured two bad cases, in which the milk was clotted, stringy and bloody, by bathing the udder a few times in a strong decoction of arse-smart, or smart weed.

Another. Tobacco, cut fine, and simmered in urine; then stir in pure clay, and apply to the udder.

Another. Foment the bag with warm soap suds vinegar and spirits. If it will break, apply poultices.

TO CAUSE A COW TO GO WITH YOUNG.

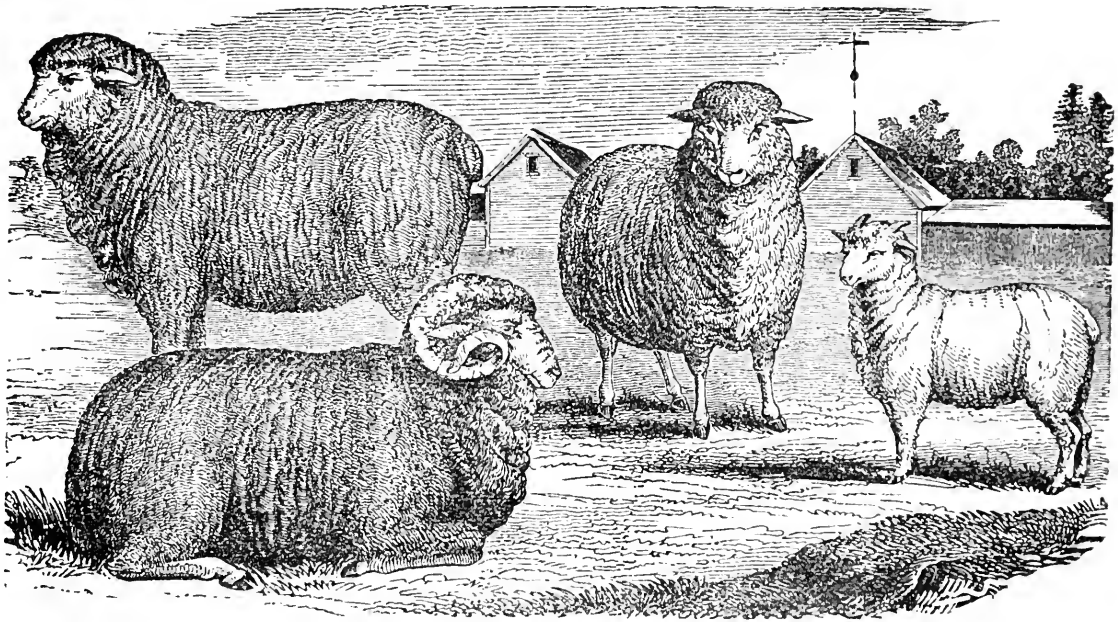
Cows and heifers are not always with young in season. Poor keeping is one cause. Feed nourishing food; give rye meal, oat meal, or oil meal; prefer rye. This cordial is good: — Caraway seeds, one ounce; gentian

half an ounce; ginger, half an ounce, and twenty drops of peppermint; mix in gruel or water. Avoid cantharides and all powerful stimulants, as dangerous. A further aid is running alone with the bull. She may be in too high condition; then give gentle physic, moderate feed, and reduce gradually. She may be barren, though often in season, and taken to the male. The excitement may be insufficient; then feed better, as above; or it may be too great; then let her take the male towards the close of her season, when it is abating. Bleeding freely is good. A heifer was driven often without effect. Then, on taking the male, twelve or fifteen pailfuls of cold water were poured on her immediately. It succeeded. It was a single case, but seems founded on philosophy. Drive the cow from the male immediately, not allowing her to stop to dung or urinate, nor to come near other animals, till her season is past. When in season, give her milk to the pigs.

BROKEN HORNS.

Joseph Frost, Esq., of Elliot, Me., says, in the "Boston Cultivator:" "We see cattle with broken horns, which may be easily replaced, if proper means are seasonably adopted. We had a cow that broke her horn; it came off by the hair, and the core or pith of the horn came off about three inches from the head. We replaced the horn, and tarred a strip of cotton cloth, and wound it around the horn by the head, and then corded and stayed the lame horn to the well one. It grew on and remained.

"We have a cow that broke her horn two years ago, and it was free from the head an hour. We replaced it, and the horn shows no appearance of having been injured. When cattle have their horns broken down, or what farmers generally call droop horns, they may be replaced, and fixed properly by an iron, shaped in the natural position of the horn, and fastened to the head and well horn. The tarred bandage should be applied to the wound. In all cases the animal should be placed in a situation to prevent the lame horn coming in contact with anything."



SHEEP.

The engraving on the left represents a group of Merino sheep, a specimen of the prize flock of S. W. Jewett, Esq., of Weybridge, Vt. The Merinos are distinguished for fine wool, and for that purpose they are kept far more extensively than any other breed in the country.

TO KNOW THE AGE OF SHEEP.

The age of sheep may be known by the front teeth. They are eight in number, and appear the first year, all of a small size. In the second year, the two middle ones fall out, and their place is supplied by new teeth, which may be easily distinguished by their larger size. In the third year, two other small teeth, one on each side, fall out, and are replaced by two larger ones; so that there are now four large teeth in the middle, and two pointed ones on each side. In the fourth year, the large teeth are six in number, and only two small ones remain, one at each end of the range. In the fifth year, the remaining small teeth are lost, and the whole front teeth are large. In the sixth year, the whole begin to be worn; and in the seventh year, sometimes sooner, some fall out, or are broken. It is said that the teeth of ewes begin to decay at five or six; those of wethers at seven, and those of rams at eight.

Sheep sometimes continue strong and productive until fourteen or sixteen years old, and occasionally longer. When a boy, we had under our care a very smart old sheep, that invariably brought and raised two lambs every year, until fifteen years old.

GENERAL MANAGEMENT

Almost all the disorders incident to sheep are caused by a want, and seldom by an excess, of activity in the vital organs. The nerves are very susceptible, but when they are powerfully excited, the excitement soon

passes off, and leaves the animal extremely weak. Therefore, most of the means used for the cure of diseases of sheep should be calculated to excite, rather than allay, the activity of the functions of life.

During summer, give them a good supply of salt, and occasionally some tar; and if they do not have access to *burnt lands*, give them wood ashes mixed with their salt, of four or five parts of the former to one of the latter. Sheep running on freshly burnt lands are generally remarkably healthy. The coal and ashes are specifics against several disorders, and they will go far to get to such places.

As to sheep wanting water in summer, the question is not wholly settled. We have a number of cases in which they have succeeded remarkably well without water; and we have kept sheep in a pasture in which there was but one spring in a dry time, and we never saw their tracks around it, and though we have worked in sight of it many a day, for years and years, yet we never saw a sheep drink there. Yet some say that sheep need water in summer. The majority of evidence seems to show that they will do well without it.

Carefully select the best sheep to keep, though the butcher offers a high price for them. One good sheep for breeding is worth more than half a dozen poor ones; otherwise the poor ones are worth nothing, and the value of the best is seldom estimated.

Wean lambs in season, as it will benefit themselves and their dams. They will get accustomed to the change, while on green food, and their mothers will have a chance to gain flesh against the coming winter. Early in fall, examine the flock, and select for fattening such as are not fit to winter. When a sheep is once very fat, she should be slaughtered, as she will not probably be in so fine a condition again.

When sheep are brought to the barn in the winter, smear their noses well with tar; it tends to keep them in good health, and prevent their taking disorders.

As sheep suffer from being kept long from the ground, it is best to let them run out late in fall, or early in winter, while they can get a good support; but they should

be fed from the barn before feed is so scarce that they fall away for want of a supply. If they lose condition before housing, they will hardly recover in the winter, without extra keeping, and the consequence will be the loss of lambs, or a stinted race; loss of wool, and a poor article, and perhaps a loss of sheep. It is an important hinge, on which much turns.

Sheep suffer in our long winters for want of green food. Give them roots of various kinds, such as potatoes, carrots, beets, parsnips, and turnips. For a month or so before yearing, they should not have roots, or only a few, as they will produce a premature flow of milk, and cause it to cake in the bag. At this time, they may have a very few roots, to keep the bowels open, and prevent their faltering for want of access to the ground. Carrots are best, as they do not produce so large a flow of milk as other roots, but tend in part to keep up the condition. Do not feed too high before the yearing season. See remarks on the management of cows before calving. The same apply to sheep.

Give sheep, in winter, as condiments, salt, wood ashes, clay, and pure earth. Give them also as salutary or medicinal food, cedar, pine, spruce, hemlock, fir, and other boughs. [See Browse, page 249.] And by all means give them a good supply of pure water. As they eat dry fodder, they will drink often and freely. They cannot satisfy their thirst by eating snow, any more than a man can by devouring snow or sucking an icicle. We have kept sheep and cattle about the same distance from water, say seven rods, and the sheep would go and drink twice as often as the cattle. They would not eat more than half an hour in the morning, before they would all run and drink. They will go a considerable distance for this purpose, if kindly invited at first, by a lock of hay, or something else to entice them, instead of frightening them with dogs and noisy boys, in the vain attempt to drive them.

Mr. Thomas Noble says, in the Ohio Cultivator, "My sheep consist of sixteen hundred head, and so far, I have lost none. We cut all their feed, and the saving thereby is at least one third."

When sheep have been long from the ground, they will often do as well to let them out in spring as soon as the ground is bare, feeding them also with the best of hay, and with roots and provender.

Clover hay is the best for sheep; we have known flocks to do well and raise fine early lambs, when their feed during winter has been nothing but excellent clover hay, and pure water, to which they had access in the yard.

TREATMENT OF SHEEP AFTER SHEARING.

A correspondent of the Albany Cultivator says:— "There is nothing that conduces to the health and comfort of sheep more than a clean skin; any application that has that tendency will be of service; anything to the contrary must injure them, and the growth and quality of their wool, in a greater or less degree. Smearing of any kind is injurious, particularly so after shearing, when the wool is short; it stops the pores, checks the growth of the wool, and leaves it dry and brittle, far into the season. If, when sheep are sheared, there is a large hogshead of very strong brine made, and as the sheep are shorn they are taken to it, and while one man holds the sheep, another takes a strong scrubbing brush, and after pouring some of the brine along the back and shoulders, he scrubs the sheep well all over, until he raises a lather as with soap; nothing more is necessary The skin will be left bright, red, and clean. Every tick and sheep louse instantly disappears, and if the skin had any tendency to itch, it is entirely cured; perspiration is promoted and the growth of the wool improved. In this way, I think that the general strength of the sheep, to withstand the effects of any storm, will be better promoted than by smearing of any kind, which is never admissible.

LAMBS.

Young lambs require particular attention. If the weather should be cold or stormy, they should be in a dry, warm place, yet pretty well ventilated. If there be wool around the sheep's bag, in the way of the lamb when sucking, cut it off. Sometimes lambs are so feeble soon after they are born, that they cannot suck without assistance, or they are so weak or stupid that they will make no effectual exertion to help themselves. In such cases it often becomes necessary to press out the biestings in the teat, as the lamb has not strength to draw out the thick matter; then he may suck; if not, lay the sheep on her side, and put the teat into his mouth, and if he will not draw the milk, press it out into his mouth, and he will soon learn to suck.

Some young sheep will not own their lambs, or owning them, they will not stand still and allow them to suck, owing to their ignorance, or the tenderness of their bags; and attention is necessary, else the lamb will be lost. Some lambs are troubled in cutting their teeth, and cannot suck well for soreness of the gums. In such cases, rub hard the swelled gums with the thumb-nail, or other hard, smooth substance, which will promote teething.

Some sheep, old as well as young, will not own their lambs, so as to allow them to suck at all; this is a very troublesome case, and sometimes difficult to remedy. Bringing a dog near the lamb may have some effect, as she may be disposed to protect her lamb, and fight bravely in its defence. If she persist in her unnatural course, hold her often, and let the lamb suck; he will soon learn to run to his mother for this purpose, as soon as his kind assistant appears. Let him suck as often as morning, noon, evening, and at night, just before bedtime; in this way, sheep will often own their lambs, sometimes in one week, and again not till after two or three weeks.

If a single lamb die, and another sheep will not own her lamb, or another sheep has twins, skin the dead

lamb before it is stiff, if convenient, and put the skin on the lamb you would have the *lambless* sheep own. When a boy, and we had the care of sheep, one brought three lambs; at that time a single lamb died, and we put the skin on one of these *thrices*, and the poor *childless* sheep owned it. By holding a sheep that had some time before lost her lamb, the other two sucked her, occasionally, but she did not own them until turned out, in the spring. But after they had been out a few days, we noticed that the three lambs were carefully cared for each having a mother exclusively.

When the excrements of a lamb are so glutinous as to fasten the tail to the vent, it must be washed clean, and the tail and buttocks should be rubbed with powdered clay or loam, and give some mild remedy, as recommended for scours. When you give a lamb cow's milk, use that of a new milch cow.

WOOL IN THE STOMACHS OF LAMBS.

Sometimes lambs die in consequence of little balls of wool in the stomach, matted together into a hard substance, and sometimes closing the entrance into the guts. Lambs are most affected in this way when they are from three to six weeks old. Most that are affected die, and among the number are the fattest, and apparently the most healthy of the flock.

Symptoms. A lameness in the legs that causes them to reel and stagger, and at last to fall down. Sometimes they die suddenly. Those that do not show an aversion to moving about, exhibit distress after sucking, weakness in their legs, and, in extreme cases, a total loss of the use of their legs.

No Remedy is prescribed, to our knowledge. Purges produce no good effect. Emetics may. Means should be taken to prevent the lambs taking wool into their stomachs; and this is difficult, as it is not known why and how they do it. One author says, "When the dung of the ewe is covered with wool, the lamb is apt to seize it instead of the teat, and swallow it, and the lambs, seeing bits of hay fall on their mothers and on other lambs,

are apt, in their desire to eat them, to draw out filaments of wool and swallow them, from which these balls are formed."

One writer says that when fodder is given to sheep in the open yard, or when the lambs have access to hay in the barn at all times, he has not known them to be affected in this way. On feeding his sheep from racks, and not allowing his lambs to range in the barn, and eat hay at pleasure, the lambs could get hay only while the sheep were eating, one or two hours a day; and in the season he adopted this plan, a great many died, having balls of wool in their stomachs. Being anxious to get something to chew, they might take the loose locks of wool that are hanging about their mothers.

Another supposes that after the lamb is a few weeks old, he has not milk enough, and eating freely of food too hearty for his tender age, an acescent state of the stomach is produced, which requires absorbents to neutralize the acid, and they may take the wool as most convenient. With these conjectures, we leave the subject, not having facts at our disposal as to the cause.

BROWSE FOR SHEEP.

Browse of various kinds is good for sheep in winter They are very fond of it, as it affords a change, being a green food. The browse of oak, and other powerful astringents should be avoided. The browse of evergreens is used, not only as a wholesome food, but for its medicinal qualities, particularly pine and hemlock. And in some cases it is used to considerable extent as a substitute for other fodder. Pine and hemlock are best, but spruce and fir are also good.

Some farmers have nearly supported their sheep on browse for months, when hay was scarce. J. Whitman, of Turner, Maine, has used pine and hemlock for his sheep for more than forty years, and he has known no injury from them, but a benefit, and a saving of hay. He says that hemlock does not injure sheep with lambs. He prefers pine and hemlock boughs to spruce and fir

CASTRATION.

The younger lambs are when altered, the less risk there is. The best rule is to cut them as soon as the testicles are accessible. Some wait till the youngest are old enough; but in some cases this will render the operation on the oldest more hazardous, when they come at periods somewhat different. Therefore, small lots should be altered as they become fit.

Though there is less danger at an earlier age, yet if it be performed on horned sheep when the lambs are two months old, the horns will be more full, and the wethers will look handsomer. Care should be taken that, in catching the lambs, they be not harassed and disturbed, which will cause them to become heated and agitated. Heavy ewes are also liable to injury, without caution in disturbing the flock.

Apply to the wound a little tar and lard mixed, or some soothing salve, but no salt, ashes, or other harsh substances. Do not expose the lambs till they get well. Lying out nights on the cold ground is very injurious, and frequently fatal. There is nothing better than cold water to apply to the wound.

TAILS OF SHEEP—DOCKING LAMBS.

When sheep are affrighted, they frisk their tails, and are liable to dislocate their spines, and render them paralytic, if their tails are long. Therefore, docking lambs is important. This is often very improperly done, by holding the lamb by the tail, and cutting off the tail as he is pulling. In this case, the skin is pulled back on the tail, and when cut off, it recedes, leaving the bone naked. When cutting the tail, push the skin towards the rump, and then cut, and the skin will return and cover the bone. Cut off in a joint, and the wound will be less sore. It is best to cut short, as sheep discharge dung as they are lying down, and if their tails are not short they become foul.

PHYSIC.

For the general effects of physic, see page 33. Give the same purgatives as for cattle, only a tenth or twelfth part as much for a dose. In case of severe costiveness, give injections, and treat generally as cattle.

MANNER OF BLEEDING.

This operation is most easily performed on a large vein, the branches of which are spread over the face of the sheep. The vein may be felt passing over the angle of the jaw, into the neck, about two inches from it, or opposite to the third of the grinding teeth. Press upon the vein a little below where it is to be opened, and the blood will flow out freely when the opening is made, which should be obliquely, not directly across or along the vein. When the point of the lancet has fairly entered the vein, it should be raised a little upwards, and carried forward, that it may not go through both sides, and that the wound may be large enough to allow the blood to flow freely. There is a small nerve running across the vein, and to avoid cutting it, which is important, the incision may be made as low down as possible.

In diseases of the head, requiring bleeding, and in inflammation of the eyes, it is best to open this vein; but in diseases of other parts, blood may be procured from a vein that runs along the leg. This vein passes from the foot, along the back of the leg, to the ham, and then goes obliquely over to the fore part of the limb. It is nearest the surface, and sufficiently large a little above he knee. By grasping the limb above where the vein s to be opened, it swells. This is the course generally pursued by shepherds, but veterinary surgeons recom mend bleeding in the jugular vein, as more effectual With proper treatment, the harsh remedy of bleeding may generally be avoided. Indeed, it is not a remedy but only temporary relief.

EXCRETORY DUCTS IN THE FEET.

The legs of sheep are furnished with a duct which terminates in the fissure of the hoof, from which, when the animal is in health, is secreted a white fluid; but when sickly, these ducts are stopped by the hardening of the fluid. In some cases, they may be relieved by merely pressing out the hardened matter from the orifice of the duct, in each foot. But to open and cleanse the passages thoroughly, it may be necessary to place their feet in warm water or soap suds, and to use a probe or hand brush.

TO DESTROY VERMIN.

Sheep are often infested with ticks, which, in differen ways, do much damage. In grown sheep, they cause the animal to pull out the wool with its teeth, in biting and scratching to obtain relief from the intolerable itching which they suffer. Sometimes almost the whole fleece is lost in this way. Ticks always tend to reduce the flesh of the sheep; and in young lambs they are particularly injurious, by keeping them poor and weak, so that they are unable to bear up under the effects of inclement weather; thus remotely causing death.

Remedy. There are several ways of ridding sheep from this annoyance. In a day or two after the sheep are sheared, the ticks having lost their natural shelter and protection, the wool, will nearly all, go on to the lambs; the fleece of which is generally started enough to afford them better harbor than they can get on the closely shorn skins of the old sheep. At this time they may be very easily destroyed by immersing the lambs in a strong solution of tobacco. For this purpose, a tub or vat of sufficient size, should be procured, into which, after having sufficiently boiled or steeped the tobacco, [tobacco stems are just as good as anything,] turn the decoction. In this immerse the lamb all over, except the head, a sufficient time to allow the liquor to penetrate to the skin. In this way, with convenient appara-

tus, two hands will readily dip a hundred in an hour. If the solution is of proper strength, not a tick will be found alive in ten minutes after immersion.

ANOTHER. One of the most effectual and convenien modes, both to the operator and the animals, is to fumigate with tobacco smoke. We have observed that smoke is instant death to the filthy rascals. It may be taken up into a bellows, in the same way as air, and blown into the wool. A very cheap and convenient apparatus may be made of tin or green wood, into which tobacco and a live coal may be put, and with the bellows the smoke may be blown into the wool. The apparatus should be pointed, and the wool opened, and the point put near the skin and closed around it. After blowing in the smoke, take it out, close up the wool, and move to another place some eight or ten inches off, and thus go over the whole fleece, which requires but a short time. We prefer this to all other methods, as nothing is more effectual and harmless to the sheep. Sometimes tobacco makes sheep sick, and it has killed lambs.

New rum or whiskey, rubbed all over the animal, is a good remedy for vermin of almost every kind.

SCAB.

This is one of the most destructive diseases that sheep are liable to in this country. It is so contagious that where it has once entered a flock, it generally passes through it, unless stayed in its course.

CAUSE. It is the work of a parasitical insect of the *acarus* family, similar to the itch in the human race.

SYMPTOMS. It first makes its appearance on the shoulder and back; the animal rubs itself against every object, — the irritation constantly increasing till it tears out the wool with its teeth, — and exhibits intense suffering. Little red pustules will appear along the back, and are succeeded by a dry scab.

REMEDY. Chancellor Livingston recommended spirits of turpentine and hog's lard, parts not named. One says he tried it with success.

Another. Apply an ointment of three parts grease and one of turpentine.

Another. Running on freshly-burned land, if turned on immediately after shearing, that the coal and ashes may come in contact with their bodies. This is also good for foot-rot, and worms in the head. It promotes the general health of sheep, and they will go far to visit it.

Another. Anoint the parts affected with a mixture of equal parts of tar and grease; first wash in strong soap suds, and dry well.

Another. A correspondent of the "American Farmer" had two hundred sheep; forty were badly affected with scab in November. At shearing time, he had lost one hundred. He cut sixteen pounds of tobacco up fine and boiled it. He put the liquor into a cask, and when cool enough to use, he put a gill of spirits of turpentine into the cask, and repeated this for every twelve sheep. The sheep were put into the liquor up to the head and ears, moved around so as to be thoroughly wet, and then drained. He did not lose another, and the ticks were destroyed. One writer says the liquor may injure if there be more than quarter of a pound of tobacco to a gallon.

Another. Mercury is very destructive to *acari*, but it is a dangerous medicine, excepting in skilful hands. Some think it is more safe, more easily applied, and surer than decoctions of tobacco or solutions of arsenic. With one part of mercurial ointment, known as *unguentum*, mix five parts of lard, and apply it, in moderate quantity only, to the parts affected. Or, as the power and quality of the ointment are uncertain, make one that can be depended on, as follows: Crude quicksilver, half a pound; spirits of turpentine, one ounce. Rub them together for several hours, till perfectly united. Rub a little on a piece of glass, with the finger, and if shining particles remain, continue the rubbing. To this mixture, well reduced and mixed, add two and a quarter pounds of lard, of the temperature of new milk, and stir till stiff. After using mercurial ointment, protect the sheep from cold and storms.

STOPPAGES IN THE THROAT.

This disease causes wheezing and difficult breathing, and it is commonly produced by colds or bad pasturage.

Remedy. If colds cause the disease, keep them warm; if it is owing to unfavorable pasturage, put them on higher grounds. Make a strong tea of pennyroyal, and to one quart add a pound of honey or half a pint of molasses, and half a pint of sharp vinegar. Give half a pint of this, warm, every night. Other warming aromatic teas will answer.

SORE MOUTH AND JOHNSWORT SCAB.

Sometimes sheep have sore mouths from eating poison hemlock, St. Johnswort, or other irritant or poisonous plant. The poison may also affect the intestines; and eating St. Johnswort will cause scales of the skin over the whole body.

Remedy. Apply tar plentifully for the sore mouth; and for inflammation of the bowels, give tar and salt. Put tar in troughs or on boards and strew salt over it. If they will not eat it, put it far back on their tongues, and they must swallow it. Apply to the scabs a salve of lard and sulphur, or give these for internal inflammation. They are also good for the sore mouth.

DISORDERS OF THE EYES.

Sheep are often affected with colds falling upon their eyes, and almost blinding them; and at other times they have this complaint without any visible cause. In either case, the remedy is the same. Press out the juice of great celandine, and drop a quantity of it into the eyes, night and morning. [See page 66.]

WORMS IN THE HEAD.

This is probably the most destructive disorder with which sheep are afflicted in this country; and many die with it, and the owners know not the cause, or learn it too late. In some cases, half of large flocks have died of this disease in one year. The annual loss in this country is estimated at one million of dollars; but of late more attention is paid to preventives and cures.

Cause. A large fly, or bee, (*Oestrus ovis,*) lays its eggs in the nostrils of sheep, in August and September, and perhaps earlier and later, where they hatch, and from twenty-five to one hundred small white grubs, with black heads, and a black streak on the back, may sometimes be found in the cavity between the nostrils and windpipe. They continue in this place till the next summer, when they get their growth, and are as large as a pipe-stem, and nearly an inch long, with four large teeth, as hard as bone. They then leave the sheep, and soon cast off their skin, when the bee appears, and is ready to lay a new lot of eggs. Some say that the worms do not injure fat sheep, as they find sufficient support in the nostrils, but in poor sheep, for want of food, they ascend in the head. When attacked by the fly, sheep run with their noses to the ground, and often thrust them into loose earth to shut up the avenues of approach to the enemy.

Symptoms. They do not generally appear till towards spring, at which time they may be discovered by a sickly countenance and loss of flesh, notwithstanding the best of keeping; sometimes running at the nose, (though not always,) and snorting, as if trying to blow something from the head. In some cases, the sheep suddenly spring about in a wild, frantic manner, and drop down dead. When this symptom is exhibited, the grubs have assailed some vital part. When they do not die in this manner, they become so poor that their wool stops growing and falls off, and they give little or no milk. Sometimes they linger, pining away, and do not die till June or July.

PREVENTIVE. Smear the noses of sheep with tar frequently, from the coming until the departure of the fly. To be sure, begin in July, and continue the use of tar till October. It may be applied directly to the noses of sheep, but the better way is to lay it in a trough or on a board, and strew salt on it, and the sheep, in eating the salt, will smirch their noses pretty well themselves. Give them salt in this way frequently, or keep a supply by them. Tar is also a specific against other diseases.

REMEDY. Take half a pound of good Scotch snuff, pour on it two quarts of boiling water, stir it and let it stand till cold; with a syringe inject about a table spoonful of this liquid and sediment up each nostril. Repeat this three or four times, at proper intervals, from the middle of October to the first of January. The grubs are then small and more easily destroyed than afterwards, and they will not have injured the sheep as they will if this operation be deferred till later. Half an ounce of asafœtida, pounded in a little water, and added to the snuff, will make it more effectual. There need be no alarm if the sheep be very drunk, and apparently in the agonies of death, when the operation is performed, as they will soon recover. Dry snuff may be blown up the nose with a quill, and have a good effect, but it is a slow and dirty job.

The reason for repeating the operation is, there are many cavities and folds where the grubs may not be exposed, and by repeating the application often, they may crawl out, and, by a change of situation, become exposed to the snuff. The sediment is thrown up, as it will be likely to remain longer, and prove more effectual than the liquid.

ANOTHER. Blow tobacco-smoke well up the nostrils, by inserting the stem of a tobacco-pipe, well charged and lighted, and blow at the bowl, through a covering of cloth, for a few seconds, then in the other nostril.

ANOTHER. Pour into each nostril of every sheep affected, a tea-spoonful each of spirits of turpentine and olive oil.

Mr. J. Brown, of Akron, Ohio, a distinguished flock-master, of much experience, says, in the "Ohio Culti

vator," that the fly, which is of light drab color, deposits a *crawling maggot* at the nose of the sheep. He had taken hundreds of them, alive and active, from flies His son had them deposited twice at his nose, while at work among the sheep. The flies work in summer, and in the fall till cool weather. The act of depositing is done very quick, and the maggot is ready to pass immediately into the head. The only chance to destroy them is during their infancy, before they pass high into the head, which is not under five or six weeks. There are two sets in a year, if not more. Matured ones have been found in the heads of lambs not more than four months old.

Remedy. He uses tobacco-water with excellent success, commencing the last of July, and applying it till the last of October, generally three times in the season. Boil one pound of good tobacco in a gallon of water. Turn the sheep on their backs in a little trench dug in the ground, and with the head held back on the ground, inject with some force about a table-spoonful of the liquor into each nostril, pointing the syringe so that it will go into the cavities in the head, instead of falling into the throat. If at first the animals appear sick and cannot stand, they will soon get over it. Two persons will go through with several hundred in a day.

STURDY, OR WATER IN THE HEAD.

The most common forms of this disease arise from a collection of water in cysts or bags connected with the brain, on which it acts fatally, by pressure. Lambs and yearlings are the principal sheep liable to this disorder.

Cause. It is supposed to be caused by the exposure of the back to cold and wet. Hence it is common to young animals whose wool parts on the back and exposes it. It prevails most after wet, cold winters, and in flocks most exposed.

Symptoms. Dulness; languid appearance; ceasing to graze and ruminate; walking in a staggering mannner; giddiness, lo[illegible]xing wildly; starting off as

though frightened; loss of flesh; haggard countenance blue color in the eye; after awhile, a rotary motion, always one way · blindness and death ensues.

PREVENTIVE. In some sections of Europe the backs of young sheep are protected, during the inclement season, by a covering of cloth or other article.

REMEDY. Examine the skull for a soft spot in the bone, which indicates where the water is collected. Then perforate the skull with a *trocar*, accompanied by a tube through which the water may escape. After which, apply a few drops of the essence of myrrh to the aperture. Shelter the animal and dress the wound. This sometimes succeeds, but more often the reverse. But better save a few than lose the whole. A writer on this subject says that he knew a shepherd in Europe that saved nearly all on which he operated in this manner, while he himself lost almost all on which he operated in this way, but saved nearly all on which he operated by running a sharp wire up the nostril into the brain, and letting out the water. He thought that in tapping through the skull, he might not open deep enough. Ir either way, it is a nice operation, that requires skill.

A sheep with this disorder was pronounced incurable, and left to die; and a boy bored a hole with a gimlet exactly on the top of the scalp; the water streamed out; in a few minutes, the sheep started up, and ate grass. and shortly recovered.

INFLAMMATION OF THE BRAIN.

This disease is caused by confinement in bad air, or high feeding, whether stall feeding or luxuriant pasture.

SYMPTOMS of this disease are so very different from stùrdy, which we have just described, that they are easily distinguished. This disease generally attacks the healthiest sheep, and of all ages, and more in hot weather than early in spring. In this complaint there is no stupidity, no disinclination to move, no moving round and round; but the eyes are protruding, bloodshot and bright, and the countenance seems eager and ferocious, not depressed and ·nxious. The animal is i· constan·

motion; he gallops about; attacks his companions and the shepherd, and even assaults a tree or post. He is under wild delirium, and so continues till exhausted; he then rests, and again starts as wild as ever.

Remedy. Bleed rather lightly and if there be blindness, bleed in the vein running from the corner of the eye to the nose. Give each two ounces of castor-oil or other physic. Wash the head in hartshorn, or in cold vinegar and water. Give to drink herb tea sweetened with molasses. Give a plenty of room, pure air, and light food.

APOPLEXY.

This happens only to sheep in high condition, and then from journeys, worrying, or over-fatigue. Sheep, though very fat, if kept quiet, are seldom affected with this disease.

Treatment. Give physic, and feed sparingly on light food. Bran mashes and roots are good. Prefer grass to hay in the season of it. In winter give clover. If there are feverish habits, give raspberry tea, or some other sedative.

STAGGERS.

Caused by improper food, which produces constipation of the bowels, and staggers follow. Oak leaves and buds, and other astringent substances are injurious, as they bind the bowels.

Symptoms. Giddiness in the head, and trembling in all the limbs. The sheep stagger and fall.

Remedy. Dissolve an ounce of asafœtida in two quarts of water. Give a gill to each animal, warm, every three hours. This commonly opens the bowels, and gives relief; it also has remedial effects on the nervous system. When recovered, let them not return to the same food.

Another. Melt half a pint of hog's lard, and pour down the throat of each. Any other physic may be used, as salts, oil, thoroughwort tea. Feed on light, laxative food.

FOUL NOSES.

Put tar in troughs, or on boards, and put salt on it, and if the sheep will not eat it voluntarily, in this or in some other way that you can devise, put it into their mouths, and so near their throats that it will go down. Pine boughs are also good for this complaint.

INFLUENZA.

Cause. Exposure to storms and cold. Lambs or young sheep are most liable to it.

Symptoms. The first are a dulness of countenance and a disinclination to join the rest of the flock, or to look for food. They soon become more dull; a thin, mucous discharge from the nose and eyes; drooping of the ears; grating of the teeth, and a staggering gait in walking. As the disease advances, these symptoms become more manifest. When it is considerably advanced, diarrhœa generally sets in.

Treatment. To those afflicted with purging, give astringents of chalk, &c., combining them with an aromatic. To those that are costive, give a gentle laxative, followed by a tonic. Keep them in a warm, dry place, till recovered. Small doses of tar are also good. Keep the bowels open with laxative food, such as bran mashes and roots.

SCOURS, OR DIARRHŒA.

Causes. These are numerous, such as eating a soft, tathy pasture, particularly if fouled by inundations of the previous winter; feeding on too rich a pasture; sudden change from a poor to a rich pasture; change from dry to succulent food; transition from heat to cold; giving salt very freely; weakness and relaxation of the bowels; improper food; change of place, and other causes.

Remarks. Diarrhœa is frequently only the symptoms of other disorders exhibited in this sanative effort of

nature to ward off a more serious evil; therefore, it may be well to let it continue twenty-four hours before attempting to check it.

Remedy. When purging is brought on by a soft, tathy pasture, or by too rich a pasture, a moderate allowance of good hay will generally stop it. When it is caused by exposure to damp, or by sudden transition from heat to cold, it may be arrested by keeping the animal in a house a few days, and feeding on dry food.

But when crude, trashy matter has been swallowed, and it keeps up irritation, medicine must be resorted to. Administer to each animal an ounce of castor-oil in gruel; adding twenty drops of laudanum, if there has been any straining or evidence of pain. When the bowels have been *well cleaned* by a cathartic, if the discharge continue, it should be checked by astringents. For this purpose, a decoction of raspberry leaves, or of blackberry roots, may be used, or other astringent, and mollifying drinks.

Another. After tagging them, give to each from four to six table spoonfuls of rennet, prepared as for making cheese. To lambs, give in proportion to their size. If they are not relieved in twenty-four hours, repeat the dose. One dose generally cures.

For Scours in Young Lambs. Give each a tea-spoonful of ginger and rhubarb, in warm gruel, with ten drops of laudanum.

Another for Sheep or Lambs. Give them a small dose of castor-oil, and, the next day, give some milk in which have been boiled a little flour and some suet.

Another. Take soot from the chimney, and give a table-spoonful to each sheep, every three or four hours; or pulverized charcoal will do as well.

Diet has an important effect. Give flax-seed gruel, wheat bran, or shorts, well cured hay, and a plenty of salt. Fresh boughs of evergreen are good, in the winter season.

DYSENTERY.

The diarrhœa, or scours, continuing from neglect or bad treatment, or being very severe, degenerates into dysentery, and then the disease assumes a more serious form. A considerable discharge of mucus takes place, and blood occasionally. This disease is attended with severe griping in the bowels, and sometimes with inflammation in the intestines generally.

Remedy. Give small doses of physic, such as castor-oil or salts, for a few days, to clear the bowels of impurities, before giving astringents. The remedies recommended for scours will generally prove effectual in this disorder. If not, give, once or twice a day, in lard or oil, an even table-spoonful of fresh charcoal, reduced to an impalpable powder. This is a powerful remedy, and the lard or oil tends to prevent checking the discharge too soon. [See page 205.]

ROT.

Cause. On this subject there are various opinions. Some suppose that the numerous fluke worms which are found in the livers and gall-bladders of sheep dying with this disease, are produced from eggs that have been taken into the stomach with the grass on which the sheep have been feeding; while others think that they are the *effect*, not the *cause*, of disease—that these animalcules are engendered by the putrid contents of the stomach, caused by the watery and acid properties of food taken by sheep while feeding on aquatic plants, indigenous to wet pastures. This is the opinion of the celebrated shepherd and poet, William Hogg, who had an experience of more than half a century. He thinks it may also be caused or promoted by bad management, or some adventitious circumstances in the animal's life, as a sea-voyage, &c.

On low lands, the soft, washy sustenance imparts no consistence of vigor to the muscular and essential parts of the body the viscera are increased; a bad

shape is acquired; the lungs become obstructed in their full play, and finally affected; the unripe food produces an unusual degree of serum in the abdomen, which is diffused through many parts of the system, the miasma of the low lands promoting the disease, and after awhile the waste of the body falls into a tumor under the chin, called the *poke*.

Hogg says, "Excess of fluid in those varieties of grass which the animal selects for its food, and a deficiency of those firm, consistent kinds which are peculiarly adapted for strengthening the stomach, for animating and establishing the muscular system, I take to be the *radical cause* of this disorder; yet secondary causes may operate with such force and vigor as to unhinge the best constitution, and dissolve the best constructed parts, and when this is done, the rot is always the consequence."

It prevails the most in cold seasons, especially when cold dribbling rains come on soon after shearing. Flocks not sheltered at night in unfavorable weather, are most liable to this disease. Want of food will also occasion it, as well as eating grass full of unwholesome plants.

This disease is not common in this country, but in Great Britain it is very frequent and fatal, causing the destruction of many thousands annually. This difference is doubtless owing to their moister climate, luxuriant pastures, and artificial mode of feeding. Sheep do best in dry climates, in dry seasons, and on high and dry lands. Wet and dampness is destructive to them, especially if it be cold. In this country sheep are generally kept on hilly lands, (and mostly on short pasturage,) where the air and water are pure, and the herbage is firm, sweet, and wholesome. On the flat and luxuriant lands of the west, where the atmosphere and water are less pure, and the herbage more luxuriant, the rot, in a modified form, or some disease that resembles it, prevails considerably.

In some countries, rot is the most destructive disorder to which sheep are liable. Some consider it infectious, as it often spreads throughout the flock, and frequently over a whole neighborhood; but this general preva

ence may be owing to the primary cause being general. Some remark that this disease is not infectious, as it often happens that only a few sheep are attacked in a large flock.

Symptoms. This disorder does not at first exhibit itself externally. The blood loses its high color and tendency to coagulate, and becomes watery. The first symptoms, therefore, are a bright-red appearance about the eyes; the lips and the inside of the mouth become pale, as well as the skin generally under the wool; the animal has a faint aspect, is feeble, and the skin is foul; he is dull and listless in motion, and heavy, as though his legs could not carry him. But he continues to feed, and does not grow poor, though the natural vivacity is diminished, and signs of weakness appear. The disease commonly gains strength in winter. Watery swellings are formed under the chin, which are often absorbed and then reäppear. Soon after these the animal generally dies, without symptoms of pain.

Remedy. A change of the sheep to a high, airy situation, especially where there are many aromatic herbs, is sometimes sufficient to effect a cure, if taken in season, and the weather be dry and warm. But when this disorder has reached such a point that the symptoms are evident to a common observer, it is generally incurable. Horse chestnuts are an excellent fodder in this case; also a mixture of juniper berries, sage, wormwood, gentian, angelica root, willow bark, and other bitter substances, with a little salt and grain, which things they will generally eat of their own accord, if given them in the morning, in small quantities, without other food. Tar is an excellent preventive; of course it will aid as a restorative. Wood ashes added to the salt is excellent. This is used as a preventive.

FEVER.

Dissolve half an ounce of saltpetre in water and vinegar, and give it to the sheep lukewarm. Give also gentle physic. A tea of raspberry leaves, in addition to the other remedies, will be useful. So will other sedative teas [See Fever in "Cattle."]

CONSUMPTION.

Causes. There are various causes. The most common is exposure to storms of rain and damp snows in the cold season. Sheep will endure severe cold without injury, when kept dry, but they suffer severely by wet in cold weather, as their fleece, which serves as a protection when dry, becomes, when wet, a cold, uncomfortable mass, that holds the moisture for a long time. Bucks that have been put to too great a number of ewes, are most liable to this disease.

Symptoms. The eyes uncommonly bright and shining, water constantly running from them, and a gradual loss of flesh, running at the nose, and a cough.

Remedy. Tar or tar-water is good; but after the disease is seated, it is doubtful whether anything will avail. We heard of a case of a sheep that had a severe cough, and was failing fast in the spring; on being turned out and eating fresh herbage, she began to improve, and soon recovered. She became very fat, and was killed in the fall, when a new growth of the liver could be plainly perceived. Sweetened teas and syrups, of various kinds, as used for the human patient, have a favorable effect.

STRETCHES.

Causes. It is caused by the bowels not being kept sufficiently open, costiveness resulting from the sheep being kept a long time from the ground in hard winters and on dry food. Sometimes it is caused by an involution of one part of the intestine into another. In this case a cure may be effected, at times, by taking the animal by the hind legs, and jerking them back several times.

Symptoms. They frequently lie down and rise again, stretching themselves, and refusing food. If not relieved, they generally die in seven or eight days. Merinos are said to be most subject to this complaint.

Preventives. Feed twice a week, or a little every

day, with green food, such as potatoes, carrots beets, parsnips, cabbages and apples. Boughs of hemlock and pine are good; those of spruce and fir will answer, but are not so good. Bran mashes are good to keep the bowels open. Clover hay is more laxative than other fodder.

REMEDY. A table spoonful of castor-oil to each sheep generally gives relief, and soon effects a cure under good treatment as to food.

ANOTHER. Give each a gill of hog's lard.

ANOTHER. Give each an ounce of Epsom salts.

ANOTHER. In Morrell's "American Shepherd," a work of great merit, it is said that a neighbor gave each a quid of tobacco, which always proved effectual. This is physical.

BRAXY.

CAUSES. Exposure to severe storms, poor keep, plunging into water when hot, feeding on frost-bitten, putrid, or indigestible food. Many die of this disorder on the prairies.

SYMPTOMS. Loathing of food; hanging the head; drawing up the back; swelled belly, and feverishness.

REMEDY. Give a dose of physic of Epsom salts, one and a half ounces or two table spoonfuls of castor-oil. If the physic does not operate in six hours, give an injection, an exciting one if necessary, to cause the physic to operate. Give gruel, and light laxative food. Provide warm, dry shelter, pure water, and good food.

DROPSY.

Sheep are often swelled with water in their bellies, and if not attended to it is certain death. There are two states. The one is water between the outward flesh and the rim, the other within the rim. In the first case the cure is easy; in the other, nothing can be done.

REMEDY. In the first case, the cure is by a kind of tapping. An opening is to be made in the flesh, and a quill put in. This will give the water a free passage

out, and the wound heals of itself. But when the sheep is poor and weak, the wound must be examined daily, and dressed with tar and grease; and the animal must be put in a dry pasture. This disorder is likely to return on mismanagement in keeping. Diuretics are good for this disease, as they carry off the water by increasing the discharge of urine; but these must be used in moderation lest the kidneys be injured by over action.

FOOT-ROT.

This disorder is occasioned by sheep going in wet pastures. There is an issue in the division of each foot, a little above the hoof, which some have erroneously supposed to be a living worm. When sheep stand long in the water, it affects the issues in their feet, so that an inflammation takes place, and their feet will rot off, without some remedy. One great cause is that soft, low lands encourage a rapid growth of the hoof, which would be worn away if the sheep travelled far on rough, high lands.

Some suppose that this disease has been imported into this country in modern days, and that it is produced and propagated only by contagion and infection, and that diseased sheep may leave infectious matter when they travel, that will communicate the disorder to others that pass the same way months afterwards.

Preventive. Though nature has provided the issues in the feet of sheep for a useful purpose, as well as those in the legs of swine, yet some recommend taking out those issues when sheep run in low lands. It may be done thus: put the finger on the under side of the foot and press upward, then with a sharp knife cut through the skin around the mouth of the issue, and with a strong pair of tweezers it may be pulled out; the place will then heal, and the sheep will not be liable to the foot-rot, though they run in wet pastures.

Another Preventive. Make the sheep travel every day over a rough surface that will wear away their hoofs as they grow or every fortnight rub them down with

a pumice stone; or pare and rasp the foot. Having done this, give a gentle purgative.

ANOTHER. Mix with the salt given to sheep, one twentieth part of sulphur, and this will tend to prevent the foot-rot, or aid in the cure. In using remedies, it may be well to use some of these preventives as an auxiliary.

REMEDY. Take one pound of blue vitriol, (*sulphate of copper,*) one ounce of alum, and pulverize them as fine as flour; mix them with a table spoonful of honey and lard enough to make a salve. Pare the feet thoroughly, and apply this mixture to the sore. Tar may be used in place of honey.

ANOTHER. Place a few bushels of lime where the sheep frequently pass, as by the bars or gate, so that it may be three inches deep when they alight on jumping. Pare their hoofs first. The lime should be fresh and slaked. If deeper than three inches, it may take the hair off the legs. This is called a speedy remedy.

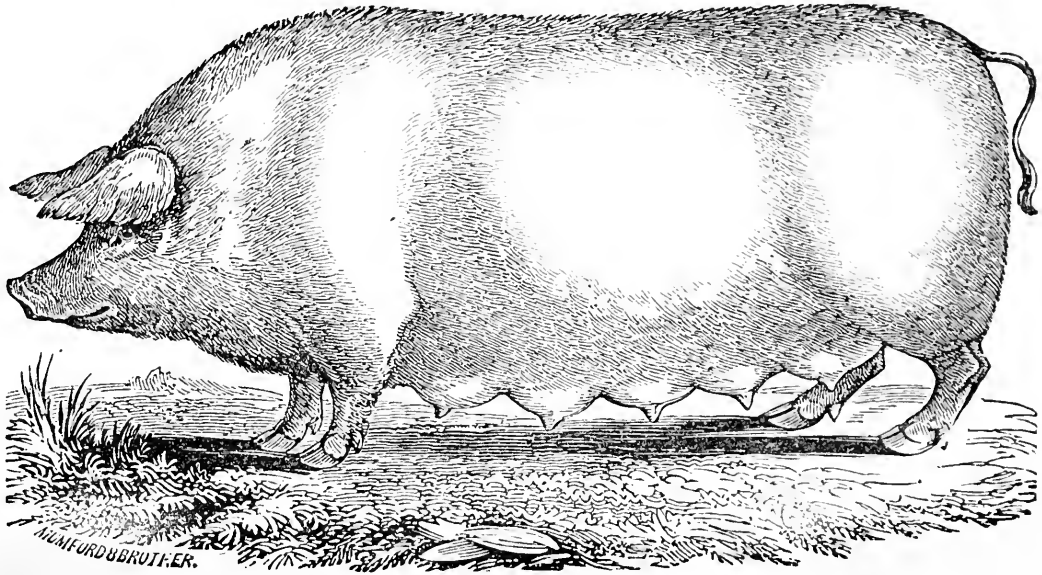
ANOTHER. Pare the hoof as far as there is any dirt or fester under it, wash it in soap suds, and wipe it clean and dry. Then bathe the tender parts with a feather dipped in the butyr (chloride) of antimony. Turn the infected sheep into a dry lot by themselves; in a week examine again, and turn the well ones into the flock, and repeat the application to the others.

ANOTHER. Three parts of finely pulverized Roman or blue vitriol, and one part of white lead; mix into a thin paste with linseed oil. Slightly cut the hoof, so as to come at the affected part, and apply the remedy. It may need repeating. This is recommended by Hon. William Jarvis, who is high authority in sheep management, in his letter in the "American Shepherd."

ANOTHER. Running on freshly burned lands. [See page 244.]

ANOTHER. Pare the hoof as before directed, and then apply, daily, spirits of turpentine to the affected parts.

NOTE.—For Hoven, Abortion, Swelled Udders, Management when with Young, &c., see these subjects in Cows.


MUMFORD & BROTHER.

SWINE.

THE figure on the left is an excellent representation of the White Chester breed of hogs, considerably known in Delaware and some parts of the neighboring States. They are noted for large size, rapid growth, early maturity, and propensity to fatten; they are also distinguished for symmetry and beauty of form. We know not how they will compare with many very fine varieties in other sections of the country.

The diseases of swine are less known than those of other animals, owing to their being regarded as dirty, obstinate, unsocial animals, averse to being handled and petted, "as contrary as a hog;" and from this distant acquaintance with their keepers, they are but little affected by suasion, and, of course, are very difficult to doctor. Therefore, it is of great importance to preserve the health of the hog, for, with this animal, prevention is *emphatically* the better cure.

TO PRESERVE HEALTH.

In summer, keep hogs in a cool, airy situation, and do not make them extremely fat in hot weather. Allow no carrion or filth, with noxious effluvia, to remain near them. If confined, give them green food, such as grass, weeds, and other herbage, and occasionally raw roots. Give them pure water to drink, and, if possible, a supply to wallow in. Wash them now and then in buttermilk and if they are very dirty, wash them in soap suds, and then in buttermilk. This will keep their skin clean, soft, loose, and add greatly to their health and thrift.

In cold weather, give them a dry, warm shelter, well ventilated in moderate weather, and a good, soft, warm bed, and renew the litter occasionally. Cobbett says, give your hog a bed in which you could pass a night

comfortably yourself; give pure water, and generally warm food, and occasionally green food, such as raw roots, cabbage leaves, raw apples, &c.

At all seasons, when hogs are confined, give, in addition to the above, pure earth, charcoal, and occasionally rotten wood, for an absorbent. Give a suitable quantity of salt, and now and then a small dose of sulphur and antimony, and a little tar, and let them have access to alkalies, such as wood ashes and lime. If not supplied with condiments here named, urine, given occasionally, in swill, will be beneficial. And though we name it last, it should be first, as it is the most important, —*keep the issues open.*

Issues. Hogs have no insensible perspiration of the whole body, like the horse, ox, and many animals. But they have issues on the inside of their fore legs, just below the knee, which are porous, like the top of a pepper-box. These serve to drain off the superabundant fluids and humors of the body. Sometimes, from their being much in the mud and filth, or from a diseased state of the system, the pores in these issues become obstructed, and the animals fail, appearing as though they were foundered.

Remedy. Take a cob, or other rough substance, and with soap suds, rub open and wash the issues.

Swellings. To scatter swellings, take two quarts of whiskey, or other proof spirits; warm it over coals; but not to blaze, and dissolve in it a pint of soft soap. When cool, put it into a bottle, and add one ounce of camphor. [See Poultices, Liniments, &c.]

Ruptures. In this case, a hole is broken in the rim of the belly, where a part of the guts come out, and lodge between the belly and the skin, giving an appearance similiar to a swelling in the testicles. Male pigs are most liable to this disorder.

Geld the pig thus affected, if it has not been done, and cause him to be held up, with the head downward; flay back the skin from the swelled place, and from the situation of the pig, the guts will return to their place. Sew up the place with a needle, which should be crooked, to work between the hind legs. Then replace the skin and

sew it up. Apply a little lard or mild salve externally, to keep the parts soft, and feed lightly for a few days.

Giving Drenches. Do not give drenches to hogs while they are hung up squealing, with a rope in their mouths; for in this position and condition, the drench will generally go down the wrong way, and choke them. But give the medicine in milk, if they will take it; if not, let them fast awhile, and try them again. Medicines may be given in the form of a clyster. This is safe and effectual.

A General Medicine. The Am. Farmer says, when hogs are sick, and you know not what ails them, nor what to do for them, give them ears of corn, first dipped in tar, and then rolled in sulphur. Ten to one it will cure in common cases of disease. In addition, we would recommend opening the issues, if they need this operation, and giving a few ashes and some charcoal.

Disorder in Hogs. In hot weather, hogs are sometimes attacked with a lameness in their hind legs, so that they can hardly move. Owing to high feed, such as corn and barley meal, without fermentation, inflammation ensues, and the issues of their legs become closed, which open. Give green food, pure air and water.

Fever. Bleed in the tail; give, twice or thrice a day, water wherein pepper and parsnip roots have been boiled. Mild physic is also good. Feed lightly.

Swine Pox. Pound an ounce of saltpetre, and dissolve it in a pint of cider; add half a pint of sweet oil, and a table spoonful of honey, and give it lukewarm.

Catarrh. Two ounces coriander seed, one of ginger, three of honey, and half an ounce of tumeric; powder fine, and boil in three quarts of new milk, and give.

Measles is caused by carrying the fattening process too far, or too rapidly, by sudden change from poor keep to rich food. It is mostly in the throat, which is internally filled with small pustules or tumors.

Remedy. Give, twice a week, to each animal, crude antimony, finely powdered, as much at a dose as will lay on a shilling piece.

Another. A small quantity of sulphur given occasionally to swine, is good for their general health, and prevents the measles; it has a curative effect also, and will succeed with good management.

Another. Rub them all over with a stiff brush, dipped in cold water; then boil parsley roots and rue in salt water, and give.

Itch, or Mange, often appears among pigs only a few weeks old. They are seen rubbing their sides, and on examination, it will be found that their bellies are broken out with fine water blisters, somewhat like itch on a person. If nothing be done to cure them, the disorder increases, and they grow poor, and rub themselves until they rub off the hair, and most of the skin from their sides, and the greater part of them die.

Remedy. Lard and sulphur, in equal parts, melted, and mixed together, and applied very liberally all over, effects a speedy cure. Mr. Isaac Stone, of Watertown, informed us of this remedy, which we published in the Farmer's Journal. He used it with invariable success. Previous to his discovering this remedy, he lost many swine by this disease, though trying various medicines, external and internal. At the same time, give sulphur.

Blind Staggers is caused by a determination of blood to the head. But there are causes for that, and one may be the stoppage of the issues, which should be opened the first thing. High feeding, and the want of pure air, exercise, and condiments, are causes.

Remedy. A warming medicine is needed. Give a good dose of new rum and pepper.

Another. Cut the smooth knob in the roof of the mouth, until the animal bleeds freely, and then rub it with a powder of loam and salt, and give urine to drink.

Another. With a sharp knife, make an incision through the skin, about two inches in length, vertically, on the forehead, about one and a half inches below the top of the head, and insert in the wound and under the skin, as much fine salt as possible. Repeat the salt often.

Is Tobacco Poisonous to Hogs? Tobacco is a deadly poison to hogs, when taken internally; so says one, as he lost some hogs that had eaten tobacco. But another says that he gave to four hogs a good sized hand of tobacco, as a remedy for the worms, and they did well.

Sore Throat. Turn hogs thus affected into an open pasture, where they can have fresh herbage, pure air and

water, and fresh earth to root. If this be not convenient, give them a good dry shelter, good air, pure water, fresh earth, charcoal, and green food, such as grass, weeds, &c A few raw roots will be good. Give the following for a swelling in the throat: — Half a pint of molasses, a table spoonful each of hog's lard and sulphur, and a teaspoonful of Cayenne or black pepper. Melt, and mix all together, and when just cool enough, pour down the throat, unless you can make him eat it in light food.

Quincy. This is a sore throat, and the enlargement of the glands of the throat, with a stiffness of the limbs.

Remedy. See that the issues are open. Give moderate doses of physic, say two ounces of salts, which may be mixed with light food. Feed lightly, and add to the food, lye of wood ashes and salt.

Scours. Give raw tomatoes, or give powdered chalk, and remedies recommended for other animals. Among the most valuable is freshly burnt, powdered charcoal. If hogs will not eat it, pulverize, and mix it with their food.

Black Teeth. *Cause.* Close confinement from the ground.

Symptoms. Loss of appetite, dizziness, and weakness of the hind legs and hips. The teeth are black.

Remedy. Extract the black teeth; give sulphur; and wash the patient in butter-milk, rubbing smartly with a curry-comb, cob, or stiff brush; rub open the issues, and allow the animal pure air and water, fresh earth, rotten-wood and charcoal; and grass, weeds, &c.

Kidney Worms. This disease is indicated by weakness about the loins.

Remedy. Corn, soaked in lye of wood ashes, perseveringly used, has cured in many cases.

Another. D. H. Maxwell, in the Baltimore Farmer, says of the above, that it may do in recent and slight affections; but a more certain treatment is to make an incision about an inch long, and on each side of the backbone, over the kidneys, and after separating the skin slightly from the parts beneath, insert two or three cloves of garlic. Take a stitch to confine the garlic. First, shave off the hair. Dr. Holmes, of the Maine Farmer, thinks that pieces of onion or garget root, would do as well.

Murrain or Leprosy. *Cause.* Chiefly hot summers consequently, the blood becomes inflamed.

Symptoms. Shortness and heat of breath; head hanging down; staggering, and the secretion of viscid matter from the eyes.

Preventive. Follow the directions for preserving health in summer, on a preceding page.

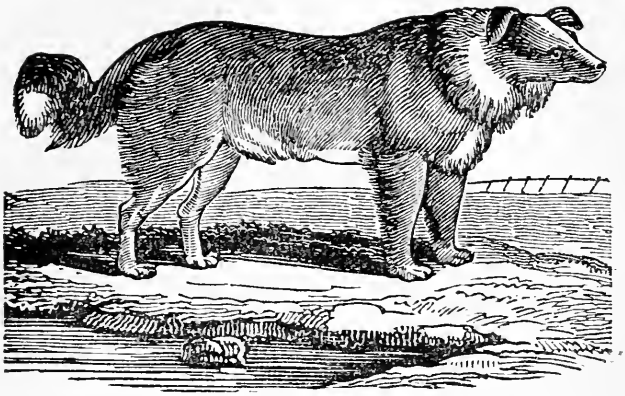
Remedy. Boil a handful of nettles in a gallon of small beer; then add half a pound of the flour of sulphur, a quarter of a pound of pulverized anise-seed three ounces of liquorice, and a quarter of a pound of elecampane root, and give this in milk, in six doses.

Sows devouring their Offspring. Some have supposed that this is caused by a desire for meat, and they have fed pork to their sows to remedy the evil. But it is a mistaken view of the case. When they are confined to a sty or small pen, they are deprived of pure earth, and various condiments that conduce to their health; consequently, a feverish habit is induced, which causes an unnatural appetite, and the unfortunate animal, in her frenzied state, attempts to satisfy it by eating her own offspring.

It has been found that when hogs run at large, seeking various condiments as they please, they do not devour their young. Allow the sow as much room in the yard as convenient, and throw in fresh, pure earth, if there be not a supply; and if she be limited to a small space, where there are no green vegetables, give her weeds and grass sods, also charcoal and rotten-wood.

Sows after Littering. Feed sparingly for a few days, and with light food, for sows are sometimes injured or killed by too much feeding while in a feeble and delicate state. If she be feeble, and her appetite fail, let her out, to run, root, and eat as she pleases.

Abortion from Biestings. Many farmers believe that the first drawn milk from the cow will produce abortion in the sow. The editor of the Maine Farmer once gave some to a sow, and that effect followed; whether from this cause, he knew not.



DOGS.

This is a portrait of the Scotch Shepherd's dog, which is distinguished for fidelity and intelligence, performing, by his sagacity and agility, what no man, or any number of men, could possibly accomplish. One of these affectionate animals once took care of a lost child for several days, dividing with him his allowance of food, which the child was eating in a cave when found by its friends.

The dog is liable to various diseases. In most respects they are similar to those of other animals, and the remedies are nearly the same. Spirits of turpentine is more powerful to the dog, and calomel is more destructive. He is a hot animal; his stomach will digest bones. While the pulse of the horse is thirty-six to forty, and of the ox fifty to fifty-five beats per minute, that of a large, lazy dog is one hundred, and of a small, active one, one hundred and fifteen to one hundred and twenty.

Rabies, or Madness, is one of the most important subjects in veterinary pathology, as it involves not only the life of animals, but that of human beings. In this dis-

ease, there is not that dread of water, or *hydrophobia*, in the dog as some imagine, though it is common to the human patient, and to some animals, as he (the dog) will often drink almost incessantly till death. There is frequently a carelessness, and an ignorance, in regard to madness, from which follow the most direful consequences. Dogs are allowed to lick wounds and sores when the first symptoms of madness are upon them, yet not known by the superficial observer. A lady lost her life by allowing a dog to lick a pimple, not aware that he was becoming mad. Dogs have bitten persons unexpectedly, and for a week or two the most skilful surgeons could not determine whether they were mad or not. There should be more caution in children playing with and teasing dogs, and dogs should be more closely watched, lest madness steal upon them unnoticed.

Symptoms of madness, in the early stages, are rather obscure. There are generally sullenness, fidgetiness, and changing of posture, in regular succession. For several hours, the dog may retreat to his kennel, and laggardly answer calls upon him. He is curled up, with his head between his paws and breast. At length he becomes fidgety and searches out a new resting place, which he soon changes for others. He goes again to his old bed, and constantly changes his posture. He gazes around strangely, with a clouded and suspicious countenance. He comes to one and another of the family, and gazes steadfastly on them, as if invoking their aid in the terrible malady that he feels creeping upon him. A peculiar delirium is an early symptom; so is an increased attachment for his master, and he licks his hands and face. In this case, the poison may come in contact with a wound, pimple, or scratch, and infect the whole system. As the dog is becoming mad, he will sometimes refuse his food, and then snatch it up and suddenly drop it. Some dogs vomit once or twice in the early stages, and never return to their natural food, but are eager for something filthy and horrible. He often eats his own dung and that of the horse. Even in a room not fouled by the urine of dogs, he examines and licks unceasingly every corner; this is a positive sign of madness. As to

the fabulous stories of froth about the mouth, this is more common in fits, and some other disorders. The bark or other sound of the dog in madness is unnatural; in ferocious madness, it is peculiar and characteristic, resembling no other sound. It often commences with a bark and ends with a howl.

In persons, madness generally takes place from three weeks to six or seven months from the time of being bitten — (cases are named in which the virus lay dormant for years) — in the dog, usually in five or six weeks, seldom in less than two weeks, nor beyond three months, though sometimes not till seven or eight months. In man it usually runs its course in twenty-four to seventy-two hours; in the horse, from three to four days; in cattle and sheep, from five to seven; in the dog, from four to six. Fits and other diseases in dogs are often mistaken for madness. The cry of "Mad Dog!" is often raised without cause. It is said that the poison matter will produce no effect when taken internally, unless there is canker, or the skin is broken on the lips, mouth or throat.

Preventives. Although there may be no cure for this disease when it has taken effect in the system, yet it may be prevented. The wounded part should be cut out, if possible, every part that is touched by the teeth, and great care should be taken that the knife does not pass from the wounded part out into the flesh, and thus extend the poison. If the knife chance to enter the wound in cutting, it should be cleaned immediately. Veterinary surgeons in Europe, after cutting the wound, and some without this operation, apply lunar caustic (*nitrate of silver*) to every part of the wound, even to the very bottom. A hot iron will have the same effect, but it is more painful.

Or apply the following as soon as possible; if the wounded parts be carefully cut out the better: Take two table spoonfuls of fresh chloride of lime, mix with half a pint of water; wash the wound with it, then apply it in a cloth, and renew often. In addition to excision of the parts, and the application of this caustic, keep the wound open five or six weeks, keeping up suppura-

tion and running. All these preventive means are founded in reason. They have been extensively tried in some parts of Europe — in Breslau and Zurich, several hundred cases, with success in almost every case.

The following is said to be effectual; it may aid as an internal medicine, but we should rely more on the above: Mix three table spoonfuls of very fine oyster-shell lime with the white of an egg, to the consistence of dough. Fry it in fresh butter or olive oil. Give this three mornings in succession, without food or drink for six hours.

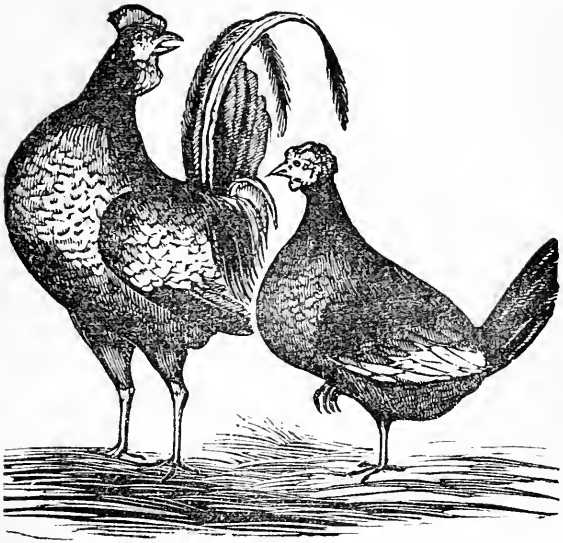
Distemper is an extensive and fatal malady, in some respects resembling glanders and horse-ail in horses. In England it destroys one third the canine race, attacking all ages, but mostly the young, and especially those from six to twelve months old. It is contagious, and is generated also. Early symptoms are, loss of appetite, spirits and condition; weak eyes, slight running at the nose; in a few weeks, a husky cough, feverishness, shivering, and sometimes fits. These and other symptoms increase. It may run its course in five or six weeks, or linger two or three months.

Remedies. Bleed, physic, and give injections. A writer in the "Southern Cultivator," says: "Give a dog a table spoonful of salt, and if he does not vomit in twenty minutes, repeat it till he does. In half an hour, burn under his nose tar, feathers and a little sulphur, to induce running at that organ. Repeat this three times a day, and the salt every morning. I raise many dogs, often have distemper among them, and never lost one."

Worms are frequently in the stomach, intestines and rectum. Give oil for physic, and oil and water as injections.

To prevent Dogs killing Sheep. Put the flock in a yard or small enclosure, and tie the dog to a stout horned buck, at less than a respectful distance, and let him butt the dog, moderately if he never offended, and severely if he is an old transgressor. Mind and not allow the dog to assail the sheep.

For various other diseases in dogs, treat as generally recommended for other animals.



HENS.

This cut represents the Dorking race, distinguished for uniting many excellent qualities.

Location and Hen-house. Select a southern aspect, that the hens may enjoy the sunshine in cool weather. Have a dry, airy situation. Make the house so that it can be well ventilated in warm weather, and yet warm in the coldest weather. It should be well lighted, and so arranged that the windows may be taken out to admit the air in summer. A house may be made warm by building it in the side of a bank, or by banking it up with earth.

Food and Feeding. Hens may be fed mostly on the cheapest grain. They do well on Indian corn, oats, buckwheat, or barley, alone; but it is best to give them two or three kinds. Corn is their favorite. Keep grain

constantly by them, but not much at a time. Give them boiled potatoes also; mash them while hot, and stir in wheat bran and Indian meal. This is an excellent dish for chickens. In winter, give green food, such as cabbage-leaves, large slices of turnips, potatoes and apples In winter, and when confined in summer, give animal food, and keep by them constantly gravel, old lime mortar, pounded bones or oyster-shells. When closely confined, they often suffer for want of exercise; bury their grain in dry earth, and let them scratch it out. This promotes laying in winter.

DISEASES. The *Croup*, or *Catarrh*, is the most destructive. There is a running at the nose and eyes; the eyes swell and are closed; the whole head, mouth and throat, become affected. It is a slow, lingering disorder, sometimes continuing in the same subject a whole year. It is caused by dampness, foul air and close confinement. Last fall we had some fine Dorking chickens, running at large. We shut up only five or six in a house not very close. In a few weeks, they had the croup. We gave them a few pills of powdered charcoal and lard, washed their heads and mouths in soap suds, gave them a few doses of Cayenne pepper, and turned them out, and they soon recovered. This is the best treatment. Allow chickens exercise in pure air, pure food and water, with a little asafœtida in the water, and they will seldom be sick. For the *Pip*, take the scab from the tongue, and apply fine salt. For *Looseness*, give lard mixed with charcoal powder. For *Costiveness*, give lard.

LICE. For large lice that appear on chickens' heads soon after hatched, apply lard, new rum or yellow snuff. For the very small lice, or ticks, a most insidious and formidable enemy, apply yellow snuff or new rum. Giving a little sulphur in food is good. By all means whitewash the hen-house as warm weather comes on, and repea it, filling all the cracks and crevices. Put much salt n the whi ewash

TURKEYS.

All kinds of young poultry should have a dry, airy shelter in bad weather, as cold and dampness are destructive to them. The curd of milk is good food for young turkeys. It may be prepared by boiling sour milk. Eggs, boiled hard, are excellent. Indian meal is injurious. After they are a few weeks old, it may be given, if prepared by scalding. Brown bread is good. In some parts of the west, young turkeys are fed almost wholly on shorts, and with great success. They are scalded or boiled, and stale bread added, if convenient. Boiled potatoes, mixed with bran and meal, are a very good food. If young turkeys become chilled and drooping, add to their food, chopped chives or onion tops, or a little pepper, or other warming food. When the weather is fair, turkeys do better to range in the free air, and seek their food. They are great ramblers, and cannot well bear confinement.

DUCKS.

The management of ducks is often bad when it is supposed to be good. They need fresh, pure water, not a nasty mud-hole. If you have no clear stream or pure pond, make a little artificial puddle or pond, and every morning change not only the water, but the mud and filth produced by the ducks; and give a lot of fresh gravel every day, else they will soon decline. If they have water from the pump, let it stand in the sun before they enter.

The best food for young ducks is scraps, from the tallow-chandler, cut fine and sifted to the size of large peas, then swelled half a day, and mixed with an equal quantity, when swelled, of Indian meal. On this they will be fit for the market in five or six weeks. Protect from the wet and cold. Some succeed remarkably well, and never let ducks go into water, having only a little to drink through slats.

GEESE.

Geese will do well on the same food that cattle usually have. They have wintered well in the yard with cattle, having no other food. At the time of laying, hatching, and rearing their young, they should have a good, dry, warm house, in a warm, airy location. They will do well with only a little water to drink, yet they are fond of swimming and playing in water. They are raised on the prairies with no other water than a little to drink.

BIRDS.

Birds in a domestic state, should be kept in a dry, airy place, where it is cool or warm, according to their nature. Yet a current of air should be avoided, even in warm weather. Carefully guard against the effects of sudden changes in weather, especially when there are young birds. Their house, or cage, should be kept clean, and the former whitewashed, and the latter varnished, to prevent vermin. Wash the roost and cage often in whale-oil soap, for the same purpose.

Feed generally on such food as the birds have been accustomed to in their native state. Give rice birds rice, and Canary birds canary seed, and give the latter a little hemp seed in spring, and hard-boiled eggs, mixed with crackers or stale wheat bread, also millet and dry Indian meal. Give occasionally Cayenne pepper. Keep pure water constantly by them. Most birds need little animal food. Supply all kinds of birds constantly with gravel and sand, old lime mortar, powdered bones, oyster-shells, chalk, charcoal, &c.

BEES.

Keep them in a place free from all filthy odors, and unpleasant effluvia. In the spring, clean the bottom board, and whitewash it and the lower edge of the hive, and the inside up to the comb. Put much fine salt into the wash, and apply it several times in the season. It promotes health and prevents moths; it also prevents or cures dysentery.

PRINCIPLES OF BREEDING

In breeding and rearing animals, it is in the power of every individual to make great improvements in races not already of superior blood, by selecting the best formed animals to raise, and then selecting from these best, the *very best* to breed from. Some of the following principles are evident to every common observer; others are the result of exact experiments and long observation Some of them are well established and universally acknowledged; others are questioned, and a few of them are disputed.

Like produces like. This is a general law in the animal and vegetable kingdoms. It is a governing principle throughout animated nature. But there are some slight deviations, which may be carried out to a considerable extent and form new varieties. This general law, with these few deviations, lies at the foundation of all successful breeding. When we have obtained an excellent race, we can retain it with proper care. And from the deviations we have a vast number of varieties, that originally belonged to one variety. The principle, that like produces like, only holds good in animals of a fixed race or blood stock; for mixed breeds have no permanent qualities.

Like produces like, in blood stock that has been carefully bred for a white color, forty or fifty years, almost every animal will be wholly white. Now as to the deviations. Select those that have a little red on them, and breed from them, continuing to select those that have the most red, and after a long course of careful breeding, a red race will be obtained. Then reverse and select those with spots of white, and you can breed back to the pure white.

Sometimes the intellectual powers, or imagination, may have an influence over the organic power, and cause a material deviation from this general rule; and in some instances a strong resemblance, to generations even long past, has been revived. A cow ran with a

horned white ox, with some black spots, while she was in season, before taken to the bull. Neither the cow, bull, nor any of the herd, had horns or any white on them; yet the calf had horns, and was black and white. Within a few years, in Maine, an animal showed distinct qualities of a bull that was in the herd forty years before, which properties had not been apparent for a number of generations previous to their late exhibition.

Breeding "in and in," and Close Breeding. The former term implies breeding from precisely the same race, or blood; and although this course is absolutely necessary, in some cases, to propagate a race in its purity, and may succeed very well for a few generations, yet it should not be carried far, as it will eventually tend to weakness of constitution and degeneracy. Breeding between a parent and its offspring, though *Close Breeding*, and objectionable, is better than to breed between animals from the same parents, especially if the parents were of different races; for, in the first case, the two animals are only half of the same blood; but, in the second, they are of the same blood. A connection of those animals that are allied to each other should generally be avoided. In breeding from the same race, it is better to extend the stock into different families, that there may be a wider range for selection.

Crossing. By judicious crossing between animals of different breeds, the greatest improvements are made. In this case, the two races should not be widely different. If the two breeds are of different sizes, the male should be selected from the small race, and the female from the large breed. The reason for this is obvious; for then the dam will have sufficient capacity for her young; it will not, nor herself, be endangered at its birth, and she will have a supply of nourishment for it. But if it be of a larger breed, the progeny might be limited, endangered, stinted, and wanting in symmetry and form.

Superior Influence of Blood Stock. If one of the parents is blood stock, or a fixed breed, and the other is not, the blood stock will generally prevail. This is very evident as the animal of blood stock has its qualities permanently

established, and will transmit them to the offspring, while those in the animal of a mixed race may be merely incidental and transient, not extending beyond that animal, or perhaps lie dormant for some years, and appear in future generations. For instance, one of the parents belongs to a fixed red race, and the other is a white animal, in a mixed herd of various colors; the progeny would generally be red.

What determines the Sex? There is some reason for believing that the animal in the greatest vigor gives character to the sex. Put a stout buck, in the prime of life, and in fine condition, with only a *few* ewes, not vigorous, being young or old, and in low condition, and most of the offspring will be males; but take a very young or very old buck, rather poor, and put him with a *large* number of strong, vigorous ewes, three or four years old, in good condition, and the majority of the lambs will be ewes. A French breeder would produce a majority of males or females, in herds or flocks, at the pleasure of the owner, on this principle, yet it is disputed.

The Influence of Sire and Dam. Many contend that the male has the greater influence on the progeny; others say that the influence is equal; and a few contend that the dam has the greater influence. The reason that so many think that the sire has the greater influence is doubtless from more attention having been given to the improvement of the male, as he is the more important animal, from his greater progeny.

It is the opinion of many breeders that the offspring more resembles the sire externally, and the dam internally; that in sheep, the lamb will resemble the sire in fleece, and the dam in disposition and constitution; but this difference probably obtains only in a moderate degree.

It is generally acknowledged that the male offspring more resembles the mother, and the female the father. On this principle, to get good cows from a superior cow, raise bulls from her and heifers from them, and the reverse. Here we may have the reason for so many failures in attempts to raise up fine cows from some very

superior native cows; but another important reason for the failure is that our native breed is mixed up and constantly varying.

Causes of Degeneracy. They are numerous. Among the most prominent are, breeding from worthless animals and in a hap-hazard manner; breeding in and in; close breeding; want of good keeping; want of good management; bad training, and excessive use of males. In some towns, not one good horse, male or female, can be found, and yet every sorry jade has a foal, and perhaps by the most worthless horse in the place; and this beginning is of a piece with the whole mangement in rearing and breaking. In some cases, a buck is shut up and poorly fed, and greatly reduced, and then turned into a large flock.

Bad keeping, irregular feeding, the want of a regular supply of pure water, inaction, exposures, ill-usage, and bad management of any kind, are causes of degeneracy. To improve a race of animals, then, they must be well and regularly, but not too high fed, well educated, properly exercised, well curried, and managed every way for the promotion of their health, strength, and comfort

THE END.

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